

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 31.07.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R601
Type number : 0 460 494 367
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 BTF/L3 U6

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 9.30...9.70

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 6.50...7.10
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 53.50...54.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 36.0...37.0
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
Del. quantity cm3/
> 1000S.: 15.0...17.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000S.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150

Del. quantity cm3/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 300
Charge press hPa: 1000
TD travel mm: 6.00...7.20
> mm: (6.00...7.20)
Timing valve Volt: -
electromagnet>Volt: 12.0
2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 0.00...1.20
> mm: (0.00...1.20)
Timing valve Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 7.80...8.60
> mm: (7.50...8.90)
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
4th speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 9.30...9.70
> mm: (8.80...10.20)
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
5th speed 1/min: 1750
Charge press. hPa: 1000
TD travel mm: 11.1...11.9
> mm: (10.8...12.2)
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 300
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.00...5.60
> bar: -
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.70...6.30
> bar: (5.60...6.80)

Timing valve Volt: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1750
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.30...7.90
> bar: -
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Overflow : 50.00...94.40
quantity> cm3/10s: (35.00...109.4)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Overflow : 77.70...161.10
quantity> cm3/10s: (62.70...176.10)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 45.0...46.0
> 1000S.: (42.5...48.5)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Timing valve Volt: -
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm3/: 12.0...16.0
 > 1000S.: (10.0...18.00)
 4th speed 1/min: 2375
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 34.0...44.0
 > 1000S.: (33.0...45.0)
 5th speed 1/min: 2150
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 49.10...51.10
 > 1000S.: (47.90...52.30)
 6th speed 1/min: 2000
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 51.0...53.0
 > 1000S.: (49.8...54.2)
 7th speed 1/min: 1250
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 53.5...54.5
 > 1000S.: (51.8...56.2)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 46.80...49.80
 > 1000S.: (45.30...51.30)
 9th speed 1/min: 500
 Charge press. hPa: -
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 36.00...37.00
 > 1000S.: (33.50...39.50)

Mech. shutoff:

1st speed 1/min: 2000
 Charge press. hPa: 1000
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: 12.0
 Timing valve Volt: -

Electr. shutoff:

1st speed 1/min: 400
 Charge press. hPa: -

Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -
 Timing valve Volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
 Timing valve Volt: -
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 15.0...17.0
 > 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 15.0...17.0
 > 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 8.0...9.0
 > 1000S.: (6.5...10.5)

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1250
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 24.00...26.00
 > 1000S.: (21.00...29.00)
 2nd speed 1/min: 500
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 9.0...11.0
 > 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 200
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.00...56.00
> 1000S.: (45.50...60.50)

2nd speed 1/min: 380
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 1.1...1.5
XK	mm: ARF 3 =1,9V
XL	mm: ARF 4 =1,0V
Ya	mm: 25.8...29.8
Yb	mm: 36.1...50.1

Ajustement Potentiometer:

Angle for
pot. > °: 35.0
Supply voltage
pot. > volt: 5.0

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control

lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R445-3
Type number : 0 460 494 370
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TF-L

Power KW: 67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

A05

Charge press. hPa: 1000
Setting value mm: 3.90...4.30
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.40...6.00
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 54.00...55.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 36.5...37.5
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
Del. quantity cm3/
> 1000S.: 15.0...17.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000S.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm3/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Overflow : 41.60...83.30
quantity> cm3/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm3/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 34.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 49.10...51.10
> 1000S.: (47.90...52.30)
6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 51.0...53.0
> 1000S.: (49.8...54.2)
7th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 54.0...55.0
> 1000S.: (52.3...56.7)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm3/: 46.80...49.80
> 1000S.: (45.30...51.30)
9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 36.50...37.50
> 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 15.0...17.0
> 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 15.0...17.0
> 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 8.0...9.0
> 1000S.: (6.5...10.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm3/: 45.50...60.50
> 1000S.: -

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 1.1...1.5
Ya	mm: 25.8...29.8
Yb	mm: 68.0...82.0

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R513-1
Type number : 0 460 494 371
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TF-Y VAN

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.40...3.80
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.30...5.90
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 53.50...54.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 36.5...37.5
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
Del. quantity cm3/
> 1000S.: 15.0...17.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000S.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm3/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm3/
difference> 1000S.: -12.0...14.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference> mm: -0.9...1.1 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.10...1.90
> mm: (0.80...2.20)
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.40...3.80
> mm: (2.90...4.30)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.00...4.60
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.30...5.90
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000

Supply-pump
pressure> bar: 7.20...7.80
> bar: -

Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 41.60...83.30
quantity> cm3/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm3/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 34.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 49.10...51.10
> 1000S.: (47.90...52.30)
6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm3/: 51.0...53.0
 > 1000S.: (49.8...54.2)
 7th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 54.0...55.0
 > 1000S.: (52.3...56.7)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 46.80...49.80
 > 1000S.: (45.30...51.30)
 9th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 36.50...37.50
 > 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
 Charge press. hPa: 1000
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 15.0...17.0
 > 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 15.0...17.0
 > 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 8.0...9.0
 > 1000S.: (6.5...10.5)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm3/ : 2.0...8.0 Z"
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : -2.1...2.5
 difference> mm: -(1.6...3.0)
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Charge press. hPa: -
 Supply pump-
 pressure > : -0.9...1.3
 difference> bar: -(0.7...1.5)
 Shutoff
 electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)

1st speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 22.8...24.8
 > 1000S.: (19.8...27.8)

Automatic starting fuel delivery:

1st speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 45.50...60.50
 > 1000S.: -

2nd speed 1/min: 380
 Shutoff
 electromagnet>Volt: 12.0

Del. quantity cm³/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 37.00...67.00

> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.6...6.0

MS mm: 1.1...1.5

Ya mm: 28.8...32.8

Yb mm: 69.2...80.8

Remarks:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
Edition : 07.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R597-4
Type number : 0 460 494 373
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1,9 l UD B4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 000

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0.8
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 4.30...4.50

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.40...6.00
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
> 1000S.: 50.00...51.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 37.2...43.2
Shutoff
electromagnet>Volt: 12.0

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 7.00...8.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Charge press hPa: 750
Del. quantity cm3/
> 1000S.: 9.00...13.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 32.5...47.5
mind> 1000S.: 32.5
Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/

difference> 1000S.: -7.0...11.0 *
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: -1.9...2.1 *
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press. hPa: 750
TD travel mm: 8.00...8.60
> mm: (7.50...9.10)

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 750
TD travel mm: 4.30...4.50
> mm: (3.60...5.20)

Shutoff
electromagnet>Volt: 12
4th speed 1/min: 750
Charge press. hPa: 750
TD travel mm: 1.50...2.10
> mm: (1.00...2.60)

Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure> bar: 4.30...4.90
> bar: -

Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure> bar: 5.40...6.00
> bar: -

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 750
Supply-pump
pressure> bar: 7.40...8.00
> bar: -

Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm3/10s: (26.70...101.10)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...152.90
quantity> cm3/10s: (40.60...167.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
5th speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 9.00...13.00
> 1000S.: (7.00...15.00)
8th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 32.50...42.50
> 1000S.: (31.50...43.50)
9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 42.00...44.00
> 1000S.: (40.80...45.20)
12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 50.00...51.00
> 1000S.: (48.3...52.7)
21th speed 1/min: 450
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 37.20...43.20
> 1000S.: (34.70...45.70)

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm3/: 0.00...3.00

> 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

 Damper set qty.:

 LFG-setting:

 Idle delivery:

 1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 16.00...18.00
 > 1000S.: (13.00...21.00)

 High Idle:

 1st speed 1/mi: 500
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 16.00...18.00
 > 1000S.: (13.00...21.00)

 Rest delivery:

 1st speed 1/min: 550
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 7.00...8.00
 > 1000S.: (5.50...9.50)

 Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

 1st speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm3/ : -4.5...6.5 "
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm3/: 0.0...3.0 Z'
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0

 TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : -2.5...2.9 '
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: ALFB
 TD-travel : 0.00...0.60
 difference> mm: -

KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

 SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Charge press. hPa: -
 Supply pump-
 pressure > : -0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12

 Part Load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

 1st speed 1/min: 1000
 Charge press. hPa: 750
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 34.00...36.00
 > 1000S.: (32.00...38.00)

 Automatic starting fuel delivery:

 1st speed 1/min: 180
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 35.00...55.00
 > 1000S.: (35.00...55.00)

 2nd speed 1/min: 380
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 31.00...51.00
 > 1000S.: (31.00...51.00)

 3rd speed 1/min: 100
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 37.00...43.00
 > 1000S.: (32.50...47.50)

 Shutoff electromagnet:

 Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0

 Mounting and assembly dimensions:

 Designation
 K mm: 3.6...3.8
 KF mm: KOT

MS	mm: 1.0...1.4
XK	mm: MIKROSCH.
XL	mm: A=0.8...3.0
Ya	mm: 37.6...41.6
Yb	mm: 49.9...62.8

Remarks:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FORD
Edition : 08.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R299-2
Type number : 0 460 494 374
Customer Part-No. :

Customer-specific information
Customer : FORD

Engine : 1.8 IDI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 0.8
> mm: +0.02(0.05)
Outlet > : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 6.00...6.40

AFB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.30...6.90
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1750
Del. quantity cm3/
> 1000S.: 27.4...27.8
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.0
> 1000S.: (3.0)

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Residual-Delivery Setting

Speed 1/min: 530
Del. quantity cm3/
> 1000S.: 1.00...5.00
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2675
Del. quantity cm3/
> 1000S.: 8.00...14.00
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 53.00...73.00
mind> 1000S.: 51.00
KSB/AFB
Valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250

Inj.-qty. cm3/
 difference> 1000S.: -3.5...11.5 *
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12
 TD-travel dif.measurement

1.Speed 1/min: 1250
 TD-travel
 difference> mm: - 0.5...0.7 *
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 400
 TD travel mm: 3.40...3.60 A
 > mm: (2.80...4.30)

KSB/AFB
 valve > Volt: -
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1000
 TD travel mm: 2.8...5.2 B
 > mm: -

KSB/AFB
 valve > Volt: -
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 800
 TD travel mm: 1.80...2.60
 > mm: (1.50...2.90)

KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 1500
 TD travel mm: 6.00...6.40
 > mm: (5.70...6.70)

KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 5th speed 1/min: 2000
 TD travel mm: 8.60...9.40
 > mm: (8.30...9.70)

KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Supply-pump

pressure> bar: 3.90...4.50
 > bar: -

KSB/AFB
 valve > Volt: 12.0
 Shutoff

electromagnet>Volt: 12.0
 2nd speed 1/min: 1500

Supply-pump
 pressure> bar: 6.30...6.90
 > bar: -

KSB/AFB
 valve > Volt: 12.0
 Shutoff

electromagnet>Volt: 12.0
 3rd speed 1/min: 2000

Supply-pump
 pressure> bar: 7.70...8.30
 > bar: -

KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 750
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 41.70...86.10
 quantity> cm3/10s: (26.70...101.10)
 2nd speed 1/min: 2400

KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 55.60...139.00
 quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 0.00...2.00
 > 1000S.: -
 3rd speed 1/min: 2675
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 8.00...14.0
 > 1000S.: (6.50...15.5)
 4th speed 1/min: 2550
 KSB/AFB
 valve > Volt: 12.0

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 18.0...26.0
 > 1000S.: (16.0...26.0)
 5th speed 1/min: 2400
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 25.7...27.7
 > 1000S.: (24.7...28.7)
 6th speed 1/min: 1750
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 27.4...27.8
 > 1000S.: (25.9...29.3)
 7th speed 1/min: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 26.7...29.7
 > 1000S.: (25.9...30.5)
 8th speed 1/min: 750
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 26.00...29.00
 > 1000S.: (25.90...30.50)

Electr. shutoff:

1st speed 1/min: 425
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -
 KSB/AFB
 valve > Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 10.00...14.00
 > 1000S.: (6.40...17.60)

High Idle:

1st speed 1/mi: 590
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 7.00...11.00
 > 1000S.: (3.40...14.60)

Rest delivery:

1st speed 1/min: 530
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 1.00...5.00
 > 1000S.: (0.20...5.80)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm3/ : -5.0...7.0 "
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Inj.-qty. cm3/: 2.00...8.0 "
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 TD-travel : -0.5...1.3 "
 difference> mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference> bar: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
 terza fermo della portata

stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1200
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 11.3...12.3 *
> 1000S.: (9.3...14.3)

Automatic starting fuel delivery:

1st speed 1/min: 200
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 60.00...90.00
> 1000S.: LFG=LL/VH-VL

2nd speed 1/min: 500
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 24.00...38.00
> 1000S.: LFG=LL/VH-VL

3rd speed 1/min: 275
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 60..90 (VH/VL)
> 1000S.: LFG=ERHÖHTER LL

4th speed 1/min: 100
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45...75 (VH/VL)
> 1000S.: LFG ERHÖHTER LL

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: K1
KF mm: 5.8...6.2
MS mm: 1.7...1.9
Ya mm: 31.6...35.6

Yb mm: 60.7...69.3

Remarks:

:
:
Z = Absolute delivery

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 31.07.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R601-1
Type number : 0 460 494 382
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 BTF/L3 U6

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 9.30...9.70

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 6.50...7.10
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 53.50...54.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 36.0...37.0
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
Del. quantity cm3/
> 1000S.: 15.0...17.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000S.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150

Del. quantity cm³/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 300
Charge press hPa: 1000
TD travel mm: 6.00...7.20
> mm: (6.00...7.20)
Timing valve Volt: -
electromagnet>Volt: 12.0
2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 0.00...1.20
> mm: (0.00...1.20)
Timing valve Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 7.80...8.60
> mm: (7.50...8.90)
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
4th speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 9.30...9.70
> mm: (8.80...10.20)
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
5th speed 1/min: 1750
Charge press. hPa: 1000
TD travel mm: 11.1...11.9
> mm: (10.8...12.2)
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 300
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.00...5.60
> bar: -
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.70...6.30
> bar: (5.60...6.80)

Timing valve Volt: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1750
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.30...7.90
> bar: -
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Overflow : 50.00...94.40
quantity> cm³/10s: (35.00...109.4)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Overflow : 77.70...161.10
quantity> cm³/10s: (62.70...176.10)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.0...46.0
> 1000S.: (42.5...48.5)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Timing valve Volt: -
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm³/: 12.0...16.0
 > 1000S.: (10.0...18.00)
 4th speed 1/min: 2375
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 34.0...44.0
 > 1000S.: (33.0...45.0)
 5th speed 1/min: 2150
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 49.10...51.10
 > 1000S.: (47.90...52.30)
 6th speed 1/min: 2000
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 51.0...53.0
 > 1000S.: (49.8...54.2)
 7th speed 1/min: 1250
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 53.5...54.5
 > 1000S.: (51.8...56.2)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 46.80...49.80
 > 1000S.: (45.30...51.30)
 9th speed 1/min: 500
 Charge press. hPa: -
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 36.00...37.00
 > 1000S.: (33.50...39.50)

Mech. shutoff:

1st speed 1/min: 2000
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: 12.0
 Timing valve Volt: -

Electr. shutoff:

1st speed 1/min: 400
 Charge press. hPa: -

Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -
 Timing valve Volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
 Timing valve Volt: -
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 15.0...17.0
 > 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 15.0...17.0
 > 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 8.0...9.0
 > 1000S.: (6.5...10.5)

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1250
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 24.00...26.00
 > 1000S.: (21.00...29.00)
 2nd speed 1/min: 500
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 9.0...11.0
 > 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 200
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 50.00...56.00
> 1000S.: (45.50...60.50)

2nd speed 1/min: 380
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 1.1...1.5
XK	mm: ARF 3 ≈1,9V
XL	mm: ARF 4 ≈1,0V
Ya	mm: 25.8...29.8
Yb	mm: 36.1...50.1

Ajustement Potentiometer:

Angle for
pot. > °: 35.0
Supply voltage
pot. > volt: 5.0

Remarks:

:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control

Lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R513-2
Type number : 0 460 494 383
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TF-Y

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0.3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.40...3.80

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.30...5.90
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 53.50...54.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 36.50...37.50
Shutoff
electromagnet>Volt: 12

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000S.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.00...16.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm3/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/

difference> 1000S.: -11.0...15.0 *
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: -0.9...1.1 *
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.40...3.80
> mm: (2.90...4.30)
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.10...1.90
> mm: (0.80...2.20)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.00...4.60
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.30...5.90
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.20...7.80
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm3/10s: (26.70...101.10)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 45.50...46.50
> 1000S.: (43.00...49.00)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
> 1000S.: (0.00...6.00)
5th speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 12.00...16.00
> 1000S.: (10.00...18.00)
8th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 34.00...44.00
> 1000S.: (33.00...45.00)
9th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 49.10...51.10
> 1000S.: (47.90...52.30)
10th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 51.00...53.00
> 1000S.: (49.80...54.20)
12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 53.50...54.50
> 1000S.: (51.8...56.2)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 36.50...37.50
> 1000S.: (34.00...40.00)
20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 46.80...49.80
> 1000S.: (45.30...51.30)

Electr. shutoff:

1st speed 1/min: 440
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 15.00...17.00
> 1000S.: (12.00...20.00)

High Idle:

1st speed 1/mi: 490
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 15.00...17.00
> 1000S.: (12.00...20.00)

Rest delivery:

1st speed 1/min: 490
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 8.00...9.00
> 1000S.: (6.50...10.50)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm3/ : 2.0...11.0 Z"
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -1.40...3.0 "
difference> mm: -
Shutoff
electromagnet>Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure > : -0.1...0.3 "
difference> bar: -
Shutoff
electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 16.8...18.8**
> 1000S.: (13.80...21.8)

Automatic starting fuel delivery:

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 25.00...45.00
> 1000S.: (25.00...45.00)

3rd speed 1/min: 200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 50.00...56.00
> 1000S.: (45.50...60.50)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 1.1...1.5
XK	mm: A=0.8...3.0
XL	mm: MIKROSCH.
Ya	mm: 28.8...32.8
Yb	mm: 69.2...80.8

Remarks:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R513-3
Type number : 0 460 494 384
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TF-Y

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0.3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.40...3.80

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.30...5.90
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 53.50...54.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 36.50...37.50
Shutoff
electromagnet>Volt: 12

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000S.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.00...16.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm3/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/

difference> 1000S.: -11.0...15.0 *
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: -0.9...1.1 *
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.40...3.80
> mm: (2.90...4.30)
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.10...1.90
> mm: (0.80...2.20)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.00...4.60
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.30...5.90
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.20...7.80
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm3/10s: (26.70...101.10)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 45.50...46.50
> 1000S.: (43.00...49.00)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
> 1000S.: (0.00...6.00)
5th speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 12.00...16.00
> 1000S.: (10.00...18.00)
8th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 34.00...44.00
> 1000S.: (33.00...45.00)
9th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 49.10...51.10
> 1000S.: (47.90...52.30)
10th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 51.00...53.00
> 1000S.: (49.80...54.20)
12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 53.50...54.50
> 1000S.: (51.8...56.2)

18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 36.50...37.50
 > 1000S.: (34.00...40.00)
 20th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 46.80...49.80
 > 1000S.: (45.30...51.30)

Electr. shutoff:

1st speed 1/min: 440
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 15.00...17.00
 > 1000S.: (12.00...20.00)

High Idle:

1st speed 1/mi: 490
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 15.00...17.00
 > 1000S.: (12.00...20.00)

Rest delivery:

1st speed 1/min: 490
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 8.00...9.00
 > 1000S.: (6.50...10.50)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm3/ : 2.0...11.0 Z"
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 TD-travel : -1.40...3.0 "
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Supply pump-
 pressure > : -0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 22.8...24.8**
 > 1000S.: (19.80...27.8)

Automatic starting fuel delivery:

2nd speed 1/min: 380
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 25.00...45.00
 > 1000S.: (25.00...45.00)

3rd speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 50.00...56.00
 > 1000S.: (45.50...60.50)

4th speed 1/min: 150
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 37.00...67.00
 > 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 1.1...1.5
XK	mm: A=0.8...3.0
XL	mm: MIKROSCH.
Ya	mm: 28.8...32.8
Yb	mm: 69.2...80.8

Remarks:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2150R281-2
Type number : 0 460 494 385
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD11 ATE-Y BVA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 2.80...3.00

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.00...5.60
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 61.00...62.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 42.0...43.0
Shutoff
electromagnet>Volt: 12.0

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 2.50...3.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2250
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 49.0...55.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.00...80.00
mind> 1000S.: 68.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.30...1.90
 > mm: (0.90...2.30)
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 2.80...3.00
 > mm: (2.20...3.60)
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2000
 Charge press hPa: 1000
 TD travel mm: 6.60...7.20
 > mm: (6.20...7.60)
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure> bar: 4.30...4.90
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump pressure> bar: 5.00...5.60
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 2000
 Charge press. hPa: 1000
 Supply-pump pressure> bar: 7.10...7.70
 > bar: -
 Shutoff
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 41.60...83.30
 quantity> cm3/10s: (26.60...98.3)
 2nd speed 1/min: 2000
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 55.50...138.80
 quantity> cm3/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750

Charge-air pressure-setting point> hPa: 350
 LDA-stroke mm: 5.9
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 56.0...57.0
 > 1000S.: (53.5...59.5)
 2nd speed 1/min: 2700
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 5.0...11.0
 > 1000S.: (4.00...12.0)
 3rd speed 1/min: 2400
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 33.5...40.5
 > 1000S.: (33.0...41.00)
 4th speed 1/min: 2250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 49.0...55.0
 > 1000S.: (48.0...56.0)
 5th speed 1/min: 2000
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 56.00...59.00
 > 1000S.: (55.20...59.70)
 6th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 61.0...62.0
 > 1000S.: (59.2...63.8)
 7th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 60.5...63.5
 > 1000S.: (59.5...64.5)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 59.00...62.00
 > 1000S.: (58.00...63.00)
 9th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 42.00...43.00
 > 1000S.: (40.20...44.80)

Mech. shutoff:

1st speed 1/min: 2000

Charge press. hPa: 1000
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 325
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 12.0...14.0
> 1000S.: (10.0...16.0)
2nd speed 1/min: 375
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 5.00...11.00
> 1000S.: -

High Idle:

1st speed 1/mi: 450
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 11.0...13.0
> 1000S.: (9.0...15.0)

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5...3.5
> 1000S.: (0.5...5.5)

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1500
Charge press. hPa: 1000
KSB/AFB
valve > Volt: ARF3
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm3/: 24.5...25.5
> 1000S.: (22.0...28.0)
2nd speed 1/min: 500
Charge press. hPa: 1000
KSB/AFB
valve > Volt: ARF4
Timing valve Volt: 12MM
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 13.5...21.5
> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 76.0...78.0 V
> 1000S.: (74.5...79.5)

2nd speed 1/min: 325
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 37.00...44.00
> 1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 70.00...80.00
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 0.9...1.3
XK mm: ARF3= 2.9V
XL mm: ARF4= 1,9V
Ya mm: 34.3...38.3
Yb mm: 67.1...81.7

Ajustement Potentiometer:

Angle for
pot. > °: 25
Supply voltage
pot. > volt: 5,0

Remarks:

Ya = Distance between VE flange and

speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Starting delivery check
V = Speed-control lever in full-load
position

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2150R474-2
Type number : 0 460 494 386
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD11 ATE-L BVA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 2.30...2.70

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.00...5.60
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 61.00...62.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 42.5...43.5
Shutoff
electromagnet>Volt: 12.0

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 2.50...3.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2250
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 49.0...55.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.0...80.0 V
mind> 1000S.: 68.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 0.90...1.70
 > mm: (0.60...2.00)
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 2.30...2.70
 > mm: (1.80...3.20)
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2000
 Charge press hPa: 1000
 TD travel mm: 5.50...6.30
 > mm: (5.20...6.60)
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 4.30...4.90
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 5.00...5.60
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 2000
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 7.10...7.70
 > bar: -
 Shutoff
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 41.60...83.30
 quantity> cm³/10s: (26.60...98.3)
 2nd speed 1/min: 2000
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 55.50...138.80
 quantity> cm³/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750

Charge-air pressure-setting
 point> hPa: 400
 LDA-stroke mm: 5.9
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 56.0...57.0
 > 1000s.: (53.5...59.5)
 2nd speed 1/min: 2700
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 5.0...11.0
 > 1000s.: (4.00...12.0)
 3rd speed 1/min: 2400
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 33.5...40.5
 > 1000s.: (33.0...41.00)
 4th speed 1/min: 2250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 49.0...55.0
 > 1000s.: (48.0...56.0)
 5th speed 1/min: 2000
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 55.00...58.00
 > 1000s.: (54.20...58.80)
 6th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 61.0...62.0
 > 1000s.: (59.2...63.8)
 7th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 60.5...63.5
 > 1000s.: (59.5...64.5)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 60.00...63.00
 > 1000s.: (59.00...64.00)
 9th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 42.50...43.50
 > 1000s.: (40.70...45.30)

Mech. shutoff:

1st speed 1/min: 2000

Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 325
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 12.0...14.0
> 1000S.: (10.0...16.0)
2nd speed 1/min: 375
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 5.00...11.00
> 1000S.: -

High Idle:

1st speed 1/mi: 450
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 11.0...13.0
> 1000S.: (9.0...15.0)

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 2.5...3.5
> 1000S.: (0.5...5.5)

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.0...26.0
> 1000S.: (22.5...28.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 76.0...78.0 V
> 1000S.: (74.5...79.5)

2nd speed 1/min: 325
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...44.00
> 1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 70.00...80.00
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS	mm: 0.9...1.3
XK	mm: MIKROSCH.
XL	mm: A=0.8...3.0
Ya	mm: 34.3...38.3
Yb	mm: 73.7...88.3

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Starting delivery check
V = Speed-control lever in full-load
position

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R472-2
Type number : 0 460 494 387
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TE-Y

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 3.90...4.30

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.40...6.00
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 53.50...54.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 36.5...37.5
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
Del. quantity cm3/
> 1000S.: 15.0...17.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000S.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150

Del. quantity cm3/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm3/
difference> 1000S.: 30.5...39.5 z*
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference> mm: -2.5...2.7 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -

Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 41.60...83.30
quantity> cm3/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm3/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 35.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 49.10...51.10
> 1000S.: (47.90...52.30)

6th speed 1/min: 2000
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 51.0...53.0
 > 1000S.: (49.8...54.2)
 7th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 53.5...54.5
 > 1000S.: (51.8...56.2)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 46.80...49.80
 > 1000S.: (45.30...51.30)
 9th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 36.50...37.50
 > 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
 Charge press. hPa: 1000
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 15.0...17.0
 > 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
 Shutoff
 electromagnet>Volt: 12.0

Del. quantity cm3/: 15.0...17.0
 > 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 8.0...9.0
 > 1000S.: (6.5...10.5)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm3/ : 2.0...8.0 Z"
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : 0.2...1.8 "
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: -
 Supply pump-
 pressure > : 3.8...5.2 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 50.00...56.00
 > 1000S.: -

2nd speed 1/min: 380
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 25.00...45.00
 > 1000S.: (25.00...45.00)

4th speed 1/min: 150
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 37.00...67.00
 > 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: KOT

MS mm: 1.1...1.5

Ya mm: 28.8...32.8

Yb mm: 68.0...82.0

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R445-4
Type number : 0 460 494 388
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TE-L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 3.90...4.30

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.40...6.00
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 54.00...55.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 36.5...37.5
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
Del. quantity cm3/
> 1000S.: 15.0...17.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000S.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150

Del. quantity cm³/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 41.60...83.30
quantity> cm³/10s: (26.60...98.3)

2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm³/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 34.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 49.10...51.10
> 1000S.: (47.90...52.30)
6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 51.0...53.0
> 1000S.: (49.8...54.2)
7th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 54.0...55.0
> 1000S.: (52.3...56.7)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 46.80...49.80
> 1000S.: (45.30...51.30)

9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 36.50...37.50
> 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 15.0...17.0
> 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 15.0...17.0
> 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 8.0...9.0
> 1000S.: (6.5...10.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 45.50...60.50
> 1000S.: -

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 1.1...1.5
Ya	mm: 25.8...29.8
Yb	mm: 68.0...82.0

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 01.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R466-1
Type number : 0 460 494 389
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M718 NT19.L

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2.70...2.90
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 4.50...5.10
Shutoff
electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 51.50...52.50
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
> 1000S.: 40.00...41.00
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 800
Del. quantity cm3/
> 1000S.: 3.50...5.50
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 23.00...29.00
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...80.00
mind> 1000S.: 50.00

Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm³/
difference> 1000s.: - 8.0...16.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference> mm: - 0.8...0.9 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.7...2.9
> mm: (2.2...3.4)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 4.9...5.5
> mm: (4.5...5.9)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 7.60...8.20
> mm: (7.20...8.60)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.50...5.10
> bar: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.90...6.50
> bar: -
Shutoff
electromagnet>Volt: 12.0

3rd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.50...8.10
> bar: -

Shutoff
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 75.00...119.50
quantity> cm³/10s: (50.00...134.50)
2nd speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 97.30...180.70
quantity> cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 450
LDA-stroke mm: 6.7
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 47.00...48.00
> 1000s.: (45.00...50.00)
2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...7.00
> 1000s.: -
3rd speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 11.0...19.0
> 1000s.: (10.0...20.0)
4th speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 23.0...29.0
> 1000s.: (21.0...31.0)
5th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.00...53.00
> 1000s.: (49.00...54.00)
6th speed 1/min: 1500
Charge press. hPa: 1000

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 51.5...52.5
 > 1000S.: (50.0...54.0)
 7th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 53.5...56.5
 > 1000S.: (52.5...57.5)
 8th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 40.0...41.0
 > 1000S.: (38.0...43.0)

Electr. shutoff:

1st speed 1/min: 450
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 Shutoff
 electromagnet>volt: -
 KSB/AFB
 valve > Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 12.00...16.00
 > 1000S.: (10.00...18.00)
 2nd speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 4.0...10.0
 > 1000S.: (2.5...11.5)

Rest delivery:

1st speed 1/min: 800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 3.50...5.50
 > 1000S.: (2.50...6.50)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:
 1st speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm3/ : - 9.0...11.0 "

difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm3/: 4.0...6.0 Z'
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1500
 Charge press. hPa: ALFB
 Inj.-qty. cm3/: 4.0...6.0 Z:
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : - 0.7...1.3 '
 difference> mm: -

Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 :
 difference> mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: -
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 220
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 52.00...78.00
 > 1000S.: -

2nd speed 1/min: 400
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 25.00...45.00
 > 1000S.: -

3rd speed 1/min: 100

Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.0...80.0
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS	mm: 1.4...1.8
MS1	mm: ** 1,85 V
LDA stroke	mm: 6.7
Ya	mm: 37.2...39.2
Yb	mm: 38.2...46.8

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 01.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R508-1
Type number : 0 460 494 390
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M718 NT19.L

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2.70...2.90
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 4.50...5.10
Shutoff
electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 51.50...52.50
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
> 1000S.: 40.00...41.00
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 800
Del. quantity cm3/
> 1000S.: 3.50...5.50
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 23.00...29.00
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...80.00
mind> 1000S.: 50.00

Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm3/
difference> 1000S.: - 8.0...16.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference> mm: - 0.8...0.9 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.7...2.9
> mm: (2.2...3.4)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 4.9...5.5
> mm: (4.5...5.9)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 7.60...8.20
> mm: (7.20...8.60)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.50...5.10
> bar: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.90...6.50
> bar: -
Shutoff
electromagnet>Volt: 12.0

3rd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.50...8.10
> bar: -
Shutoff

electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 75.00...119.50
quantity> cm3/10s: (50.00...134.50)
2nd speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 97.30...180.70
quantity> cm3/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 450
LDA-stroke mm: 6.7
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 47.00...48.00
> 1000S.: (45.00...50.00)
2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...7.00
> 1000S.: -
3rd speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 11.0...19.0
> 1000S.: (10.0...20.0)
4th speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 23.0...29.0
> 1000S.: (21.0...31.0)
5th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 50.00...53.00
> 1000S.: (49.00...54.00)
6th speed 1/min: 1500
Charge press. hPa: 1000

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 51.5...52.5
 > 1000S.: (50.0...54.0)
 7th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 53.5...56.5
 > 1000S.: (52.5...57.5)
 8th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 40.0...41.0
 > 1000S.: (38.0...43.0)

Electr. shutoff:

1st speed 1/min: 450
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 Shutoff
 electromagnet>volt: -
 KSB/AFB
 valve > Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 12.00...16.00
 > 1000S.: (10.00...18.00)
 2nd speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 4.0...10.0
 > 1000S.: (2.5...11.5)

Rest delivery:

1st speed 1/min: 800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 3.50...5.50
 > 1000S.: (2.50...6.50)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm3/ : - 9.0..11.0 "

difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm3/: 4.0...6.0 Z'
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1500
 Charge press. hPa: ALFB
 Inj.-qty. cm3/: 4.0...6.0 Z:
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : - 0.7...1.3 '
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 :
 difference> mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: -
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1000
 Charge press. hPa: -
 KSB/AFB
 valve > Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 18.5..20.5**
 > 1000S.: (17.5...21.5)

Automatic starting fuel delivery:

1st speed 1/min: 220

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 52.00...78.00

> 1000S.: -

2nd speed 1/min: 400

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 25.00...45.00

> 1000S.: -

3rd speed 1/min: 100

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 50.0...80.0

> 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.2...5.6

MS mm: 1.4...1.8

MS1 mm: ** 1,85 V

LDA stroke mm: 6.7

Ya mm: 37.2...39.2

Yb mm: 38.2...46.8

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in

residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R471-2
Type number : 0 460 494 391
Customer Part-No. :

Customer-specific information
Customer : VW 1.9 L

Engine : UD T4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 111

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.70...4.10
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.30...5.90
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 39.50...40.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (3.5)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 5.0...6.0
Shutoff
electromagnet Volt: 12.0
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm3/
> 1000S.: 13.00...17.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...90.00
mind> 1000S.: 40.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: - 7.0...13.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: - 0.9...1.1 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1250
TD travel mm: 3.7...4.1
> mm: (3.1...4.7)
electromagnet>Volt: 12.0
2nd speed 1/min: 1700
TD travel mm: 5.60...6.40
> mm: (5.20...6.80)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 750
TD travel mm: 1.10...1.90
> mm: (0.70...2.30)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1250
Supply-pump
pressure> bar: 5.30...5.90
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1700
Supply-pump
pressure> bar: 6.60...7.20
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 750
Supply-pump
pressure> bar: 3.80...4.40
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm³/10s: (26.70...101.10)
2nd speed 1/min: 1850
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1650
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.0...3.0
> 1000S.: -
2nd speed 1/min: 2400

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.0...17.0
> 1000S.: (11.0...19.0)
3rd speed 1/min: 2250
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 24.0...34.0
> 1000S.: (23.0...35.0)
4th speed 1/min: 1850
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 40.0...42.0
> 1000S.: (38.8...43.2)
5th speed 1/min: 1250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 39.50...40.50
> 1000S.: (37.80...42.20)
6th speed 1/min: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.0...40.0
> 1000S.: (35.5...41.5)
7th speed 1/min: 450
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 36.0...42.0
> 1000S.: (33.5...44.5)

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 5.5...7.5
> 1000S.: (2.5...10.5)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 5.5...7.5
> 1000S.: (2.5...10.5)

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 5.0...6.0
> 1000S.: (3.5...7.5)
2nd speed 1/min: 515
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 5.5...7.5
> 1000S.: (4.0...9.0)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm3/ : 0.0...3.0 " difference> 1000S.: -
Shutoff
electromagnet>Volt: 12.0

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : - 1.3...1.7 " difference> mm: - (0.9...2.1)
Shutoff
electromagnet>Volt: 12.0

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure > : - 0.7...1.1 " difference> bar: - (0.5...1.3)
Shutoff
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 21.0...23.0 *
> 1000S.: (19.0...25.0)

Automatic starting fuel delivery:

1st speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 25.0...45.0
> 1000S.: -

2nd speed 1/min: 180
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 40.0...90.0
> 1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 40.0...90.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.1...5.5
MS	mm: 1.2...1.4
XK	mm: MIKROSCH.
XL	mm: 0.8...3.0 *
Ya	mm: 20.0...22.0
Yb	mm: 61.5...72.5

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R593-2
Type number : 0 460 494 393
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : G8T-760 CA

Power KW: 81

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,74
Outlet> : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Charge press. hPa: 1000
Setting value mm: 2.60...3.00
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 58.20...59.20
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 42.5...43.5
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 19.5...23.5
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 5.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 27.0...33.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 47.50...52.50
mind> 1000S.: 47.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference> 1000S.: - 9.0...13.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference> mm: - 0.6...0.8 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 1.50...3.90
> mm: -

KSB/AFB
valve > Volt: 12.0
electromagnet>Volt: 12.0
2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.50...2.30
> mm: (1.30...2.50)

KSB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.60...3.00
> mm: (2.30...3.30)

Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
4th speed 1/min: 2150
Charge press hPa: 1000
TD travel mm: 5.50...6.30
> mm: (5.30...6.50)

Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.30...3.90
> bar: -

Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.10...5.70
> bar: -

Timing valve Volt: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2150
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.90...7.50
> bar: -

Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 50.00...94.40
quantity> cm³/10s: (35.00...109.4)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 77.70...161.10
quantity> cm³/10s: (62.70...176.10)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 300
LDA-stroke mm: 7.3
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 49.5...50.5
> 1000S.: (47.7...52.3)
2nd speed 1/min: 2600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...5.00
> 1000S.: (0.00...5.00)
3rd speed 1/min: 2550
Charge press. hPa: 1000
Shutoff


```

electromagnet>Volt: 12.0
Del. quantity cm3/: 6.5...14.5
> 1000S.: (5.50...15.50)
4th speed 1/min: 2450
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 27.0...33.0
> 1000S.: (26.0...34.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 55.70...58.70
> 1000S.: (54.40...59.00)
6th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 58.2...59.2
> 1000S.: (56.4...61.0)
7th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 58.1...61.1
> 1000S.: (57.3...61.9)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 55.70...58.70
> 1000S.: (54.90...59.50)
9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 42.50...43.50
> 1000S.: (40.70...45.30)

```

Electr. shutoff:

```

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -
Timing valve Volt: -

```

Damper set qty.:

LFG-setting:

Idle delivery:

```

1st speed 1/min: 350
Timing valve Volt: -

```

```

Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 19.5...23.5
> 1000S.: (17.5...25.5)

```

High Idle:

```

1st speed 1/min: 400
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 17.5...21.5
> 1000S.: (15.5...23.5)

```

Rest delivery:

```

1st speed 1/min: 450
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 5.0...9.0
> 1000S.: -

```

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

```

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm3/ : - 7.5...9.5 "
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm3/: 2.0...8.0 Z'
difference> 1000S.: -
3rd speed 1/min: 1250
Charge press. hPa: ALFB
Inj.-qty. cm3/: 2.0...8.0 Z**
difference> 1000S.: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

```

```

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : -0.3...0.9 '
difference> mm: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press. hPa: ALFB
TD-travel : 0.0...0.6 **
difference> mm: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

```

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1250

Charge press. hPa: -

Supply pump-

pressure > : - 0.1...0.3 "

difference> bar: -

Shutoff

electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 200

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 50.00...70.00

> 1000S.: -

2nd speed 1/min: 300

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 30.00...50.00

> 1000S.: -

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 47.50...52.50

> 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: 6.00

MS mm: 0.7...1.1

LDA stroke mm: 7.3

Ya mm: 37.2...41.2

Yb mm: 61.3...69.7

Remarks:

:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control

lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R593-3
Type number : 0 460 494 394
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : G8T-760 CA

Power KW: 81

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,74
Outlet> : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Charge press. hPa: 1000
Setting value mm: 2.60...3.00
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 58.20...59.20
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 42.5...43.5
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 19.5...23.5
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 5.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 27.0...33.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 47.50...52.50
mind> 1000S.: 47.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm3/
difference> 1000S.: - 9.0...13.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference> mm: - 0.6...0.8 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 1.50...3.90
> mm: -
KSB/AFB
valve > Volt: 12.0
electromagnet>Volt: 12.0
2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.50...2.30
> mm: (1.30...2.50)
KSB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.60...3.00
> mm: (2.30...3.30)
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
4th speed 1/min: 2150
Charge press hPa: 1000
TD travel mm: 5.50...6.30
> mm: (5.30...6.50)
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.30...3.90
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.10...5.70
> bar: -
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2150
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.90...7.50
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 50.00...94.40
quantity> cm3/10s: (35.00...109.4)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 77.70...161.10
quantity> cm3/10s: (62.70...176.10)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 300
LDA-stroke mm: 7.3
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 49.5...50.5
> 1000S.: (47.7...52.3)
2nd speed 1/min: 2600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...5.00
> 1000S.: (0.00...5.00)
3rd speed 1/min: 2550
Charge press. hPa: 1000
Shutoff

```

electromagnet>Volt: 12.0
Del. quantity cm3/: 6.5...14.5
> 1000S.: (5.50...15.50)
4th speed 1/min: 2450
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 27.0...33.0
> 1000S.: (26.0...34.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 55.70...58.70
> 1000S.: (54.40...59.00)
6th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 58.2...59.2
> 1000S.: (56.4...61.0)
7th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 58.1...61.1
> 1000S.: (57.3...61.9)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 55.70...58.70
> 1000S.: (54.90...59.50)
9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 42.50...43.50
> 1000S.: (40.70...45.30)

```

Electr. shutoff:

```

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -
Timing valve Volt: -

```

Damper set qty.:

LFG-setting:

Idle delivery:

```

1st speed 1/min: 350
Timing valve Volt: -

```

```

Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 19.5...23.5
> 1000S.: (17.5...25.5)

```

High Idle:

```

1st speed 1/mi: 400
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 17.5...21.5
> 1000S.: (15.5...23.5)

```

Rest delivery:

```

1st speed 1/min: 450
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 5.0...9.0
> 1000S.: -

```

Load-dependent start of delivery: Inj.-qty.dif.measurement:

```

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm3/ : - 7.5...9.5 "
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm3/: 2.0...8.0 Z'
difference> 1000S.: -
3rd speed 1/min: 1250
Charge press. hPa: ALFB
Inj.-qty. cm3/: 2.0...8.0 Z**
difference> 1000S.: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

```

TD-travel dif.measurement: correttore anticipo iniezione (SV):

```

1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : -0.3...0.9 '
difference> mm: -

```

```

Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press. hPa: ALFB
TD-travel : 0.0...0.6 **
difference> mm: -

```

```

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

```

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1250

Charge press. hPa: -

Supply pump-

pressure > : - 0.1...0.3 "

difference> bar: -

Shutoff

electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 200

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 50.00...70.00

> 1000S.: -

2nd speed 1/min: 300

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 30.00...50.00

> 1000S.: -

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 47.50...52.50

> 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: 6.00

MS mm: 0.7...1.1

LDA stroke mm: 7.3

Ya mm: 37.2...41.2

Yb mm: 61.3...69.7

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control

lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R581-2
Type number : 0 460 494 396
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : G8T - 752 CA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.30...2.70
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.90...6.50
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 36.9...37.9
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 3.00...7.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
> 1000S.: 20.00...26.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: -7.4...11.4 *
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: - 0.7...0.9 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 6.00...6.80
> mm: (5.80...7.00)

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
TD travel mm: 2.30...2.70
> mm: (2.00...3.00)

Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1000
TD travel mm: 0.60...1.40
> mm: (0.40...1.60)

Shutoff
electromagnet>Volt: 12
9th speed 1/min: 750
TD travel mm: 0.0...2.20
> mm: -

KSB/AFB
valve > Volt: 12

Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure> bar: 4.40...5.00
> bar: -

Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure> bar: 5.90...6.50

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure> bar: 7.90...8.50
> bar: -

Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm3/10s: (26.70...101.10)

2nd speed 1/min: 2300
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2800

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...5.00
> 1000S.: (0.00...5.00)

5th speed 1/min: 2600
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 20.00...26.00
> 1000S.: (19.00...27.00)

8th speed 1/min: 2500
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 31.50...39.50
> 1000S.: (30.50...40.50)

9th speed 1/min: 2300
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 40.00...42.00
> 1000S.: (38.70...43.30)

10th speed 1/min: 2000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 39.30...41.30
> 1000S.: (38.00...42.60)

12th speed 1/min: 1250
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 36.90...37.90
> 1000S.: (35.1...39.7)

15th speed 1/min: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 36.20...39.20
> 1000S.: (35.40...40.00)

20th speed 1/min: 750
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 35.00...38.00
> 1000S.: (34.20...38.80)

Electr. shutoff:

1st speed 1/min: 385
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 385
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 12.00...16.00

> 1000S.: (10.0...18.00)

High Idle:

1st speed 1/mi: 435
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 10.0...14.00
 > 1000S.: (8.00...16.00)

Rest delivery:

1st speed 1/min: 450
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 3.00...7.00
 > 1000S.: (1.00...9.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm3/ : -6.1...8.1 "
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1250
 Inj.-qty. cm3/: 2.00...8.0 Z*
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1250
 Charge press. hPa: ALFB
 Inj.-qty. cm3/: 2.0...8.0 Z**
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 TD-travel : -1.0...1.4 '
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1250
 Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 **
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1250
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 22.5...23.5 *
 > 1000S.: (20.5...25.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 45.00...95.00
 > 1000S.: (45.00...95.00)

2nd speed 1/min: 350
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 15.00...45.00
 > 1000S.: (15.00...45.00)

4th speed 1/min: 100
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 45.00...75.00
 > 1000S.: (45.00...75.00)

Shutoff electromagnet:

Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.0
MS	mm: 0.6...1.0
XK	mm: A = 0,8...3.0
XL	mm: MIKROSCH.
Ya	mm: 37.2...41.2
Yb	mm: 61.3...69.7

Remarks:

Z = Absolute delivery

Ya = Distance between VE flange and
 speed-control lever in idle
 position
 Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R581-3
Type number : 0 460 494 397
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : G8T - 752 CA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.30...2.70
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.90...6.50
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 36.9...37.9
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 3.00...7.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
> 1000S.: 20.00...26.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: -7.4...11.4 *
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: - 0.7...0.9 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 TD travel mm: 6.00...6.80
 > mm: (5.80...7.00)
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1250
 TD travel mm: 2.30...2.70
 > mm: (2.00...3.00)
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 1000
 TD travel mm: 0.60...1.40
 > mm: (0.40...1.60)
 Shutoff
 electromagnet>Volt: 12
 9th speed 1/min: 750
 TD travel mm: 0.0...2.20
 > mm: -
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12

 Supply-pump pressure characteristic:

 1st speed 1/min: 750
 Supply-pump
 pressure> bar: 4.40...5.00
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1250
 Supply-pump
 pressure> bar: 5.90...6.50
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 2000
 Supply-pump
 pressure> bar: 7.90...8.50
 > bar: -
 Shutoff
 electromagnet>Volt: 12

 Overflow quantity at overflow valve:

 1st speed 1/min: 750
 Shutoff
 electromagnet>Volt: 12
 Overflow : 41.70...86.10
 quantity> cm3/10s: (26.70...101.10)
 2nd speed 1/min: 2300
 Shutoff
 electromagnet>Volt: 12
 Overflow : 55.60...139.00
 quantity> cm3/10s: (40.60...154.00)

 Delivery-quant. and breakaway char.:

 2nd speed 1/min: 2800

Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...5.00
 > 1000s.: (0.00...5.00)
 5th speed 1/min: 2600
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 20.00...26.00
 > 1000s.: (19.00...27.00)
 8th speed 1/min: 2500
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 31.50...39.50
 > 1000s.: (30.50...40.50)
 9th speed 1/min: 2300
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 40.00...42.00
 > 1000s.: (38.70...43.30)
 10th speed 1/min: 2000
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 39.30...41.30
 > 1000s.: (38.00...42.60)
 12th speed 1/min: 1250
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 36.90...37.90
 > 1000s.: (35.1...39.7)
 15th speed 1/min: 1000
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 36.20...39.20
 > 1000s.: (35.40...40.00)
 20th speed 1/min: 750
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 35.00...38.00
 > 1000s.: (34.20...38.80)

Electr. shutoff:

1st speed 1/min: 385
 Del. quantity cm3/: 0.00...3.00
 > 1000s.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 385
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 12.00...16.00

> 1000S.: (10.0...18.00)

High Idle:

1st speed 1/mi: 435

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 10.0...14.00

> 1000S.: (8.00...16.00)

Rest delivery:

1st speed 1/min: 450

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 3.00...7.00

> 1000S.: (1.00...9.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1250

Inj.-qty. cm3/ : -6.1...8.1 "

difference> 1000S.: -

Shutoff

electromagnet>Volt: 12

2nd speed 1/min: 1250

Inj.-qty. cm3/: 2.00...8.0 Z*

difference> 1000S.: -

Shutoff

electromagnet Volt: 12.0

3rd speed 1/min: 1250

Charge press. hPa: ALFB

Inj.-qty. cm3/: 2.0...8.0 Z**

difference> 1000S.: -

Shutoff

electromagnet>Volt: 12.0

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 1250

TD-travel : -1.0...1.4 "

difference> mm: -

Shutoff

electromagnet>Volt: 12

3rd speed 1/min: 1250

Charge press. hPa: ALFB

TD-travel : 0.0...0.6 **

difference> mm: -

Shutoff

electromagnet>Volt: 12.0

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1250

Supply pump-

pressure > : - 0.1...0.3 "

difference> bar: -

Shutoff

electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.

terza fermo della portata

stop (EGR set)

scarico) (ARF)

gaz d'échappement-ARF)

Spacing mm: 12.0

1st speed 1/min: 1250

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm3/: 22.5...23.5 *

> 1000S.: (20.5...25.5)

Automatic starting fuel delivery:

1st speed 1/min: 200

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 45.00...95.00

> 1000S.: (45.00...95.00)

2nd speed 1/min: 350

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 15.00...45.00

> 1000S.: (15.00...45.00)

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 45.00...75.00

> 1000S.: (45.00...75.00)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: 6.0

MS mm: 0.6...1.0

XK mm: A = 0,8..3.0

XL mm: MIKROSCH.

Ya mm: 37.2...41.2

Yb mm: 61.3...69.7

Remarks:

:

:

Z = Absolute delivery

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 01.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R547-1
Type number : 0 460 494 400
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M721 CT19.N

Power KW: 60

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 5,80...6,20
AFB/AFB
valve > Volt: 12.0

Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.80...6.40
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 45.50...46.50
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
> 1000S.: 41.00...42.00
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 14.5...18.5
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 600
Del. quantity cm3/
> 1000S.: 4.00...6.00
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 31.00...37.00

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...80.00
mind> 1000S.: 50.00

KSB/AFB
Valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm3/
difference> 1000S.: - 10.0...18.0 *

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference> mm: - 0.8...1.0 *

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
Charge press hPa: 1000
TD travel mm: 3.2...4.8 A
> mm: (2.5...5.5) A

KSB/AFB
valve > Volt: -
electromagnet>Volt: 12.0

2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 4.5...7.5 B
> mm: (4.0...8.0) B

KSB/AFB
valve > Volt: -
Shutoff

electromagnet>Volt: 12.0
3rd speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.70...2.50
> mm: (1.40...2.80)

KSB/AFB
valve > Volt: 12.0

Shutoff
electromagnet>Volt: 12.0
4th speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 5.80...6.20
> mm: (5.40...6.60)

KSB/AFB
valve > Volt: 12.0

Shutoff
electromagnet>Volt: 12.0
5th speed 1/min: 2100
Charge press. hPa: 1000
TD travel mm: 8.60...9.40
> mm: (8.30...9.70)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.70...4.30
> bar: -

KSB/AFB
valve > Volt: 12.0

Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.80...6.40
> bar: -

KSB/AFB
valve > Volt: 12.0

Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.50...8.10
> bar: -

KSB/AFB
valve > Volt: 12.0

Shutoff
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -

KSB/AFB
valve > Volt: 12.0

Shutoff
electromagnet>Volt: 12.0

Overflow : 75.00...119.50
 quantity> cm3/10s: (50.00...134.50)
 2nd speed 1/min: 2100
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 97.30...180.70
 quantity> cm3/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 900
 Charge-air pressure-setting
 point> hPa: 350
 LDA-stroke mm: 5.2
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 46.00...47.00
 > 1000S.: (44.00...49.00)
 2nd speed 1/min: 2650
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 0.00...7.00
 > 1000S.: -
 3rd speed 1/min: 2450
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 13.0...21.0
 > 1000S.: (12.0...22.0)
 4th speed 1/min: 2300
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 31.0...37.0
 > 1000S.: (29.0...39.0)
 5th speed 1/min: 2100
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 45.00...48.00
 > 1000S.: (44.00...49.00)
 6th speed 1/min: 1500
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 45.5...46.5
 > 1000S.: (44.0...48.0)
 7th speed 1/min: 900
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 47.0...50.0
 > 1000S.: (46.0...51.0)
 8th speed 1/min: 600
 Charge press. hPa: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 41.0...42.0
 > 1000S.: (39.0...44.0)

Electr. shutoff:

1st speed 1/min: 450
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 Shutoff
 electromagnet>volt: -
 KSB/AFB
 valve > Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 14.50...18.50
 > 1000S.: (12.50...20.50)

Rest delivery:

1st speed 1/min: 600
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 4.00...6.00
 > 1000S.: (3.00...7.00)
 2nd speed 1/min: 500
 KSB/AFB
 valve > Volt: 12.0
 Shutoff

electromagnet Volt: 12.0
Del. quantity cm3/: 5.50...8.50
> 1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm3/ : - 9.0..11.0 "
difference> 1000S.: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm3/: 0.0...3.0 z'
difference> 1000S.: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet Volt: 12.0

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
Charge press. hPa: -
TD-travel : -1.1...1.7 '
difference> mm: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Charge press. hPa: -
Supply pump-
pressure > : - 0.1...0.3 "
difference> bar: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm3/: 19.00...21.00
> 1000S.: (17.50...22.50)

Automatic starting fuel delivery:

1st speed 1/min: 220
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 52.00...78.00
> 1000S.: -

2nd speed 1/min: 350
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 35.00...45.00
> 1000S.: -

3rd speed 1/min: 100
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 50.0...80.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 1.0...1.4
LDA stroke mm: 5.2
Ya mm: 37.2...39.2
Yb mm: 36.6...45.4

Ajustement Potentiometer:

Angle for
pot. > °: 20.0
Supply voltage
pot. > volt: 5.0
Output volt
pot. > volt: 1.85

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 01.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R548-1
Type number : 0 460 494 402
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M721 CT19.N

Power KW: 60

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 5,80...6,20
AFB/AFB
valve > Volt: 12.0

Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.80...6.40
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 45.50...46.50
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
> 1000S.: 41.00...42.00
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 14.5...18.5
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 600
Del. quantity cm3/
> 1000S.: 4.00...6.00
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 31.00...37.00

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...80.00
mind> 1000S.: 50.00

KSB/AFB
Valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm3/
difference> 1000S.: - 10.0...18.0 *

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference> mm: - 0.8...1.0 *

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
Charge press hPa: 1000
TD travel mm: 3.2...4.8 A
> mm: (2.5...5.5) A

KSB/AFB
valve > Volt: -
electromagnet>Volt: 12.0
2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 4.5...7.5 B
> mm: (4.0...8.0) B

KSB/AFB
valve > Volt: -
Shutoff

electromagnet>Volt: 12.0
3rd speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.70...2.50
> mm: (1.40...2.80)

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
4th speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 5.80...6.20
> mm: (5.40...6.60)

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
5th speed 1/min: 2100
Charge press. hPa: 1000
TD travel mm: 8.60...9.40
> mm: (8.30...9.70)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.70...4.30
> bar: -

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.80...6.40
> bar: -

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.50...8.10
> bar: -

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Overflow : 75.00...119.50
quantity> cm3/10s: (50.00...134.50)
2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Overflow : 97.30...180.70
quantity> cm3/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 900
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.2
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 46.00...47.00
> 1000S.: (44.00...49.00)
2nd speed 1/min: 2650
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...7.00
> 1000S.: -
3rd speed 1/min: 2450
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 13.0...21.0
> 1000S.: (12.0...22.0)
4th speed 1/min: 2300
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 31.0...37.0
> 1000S.: (29.0...39.0)
5th speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 45.00...48.00
> 1000S.: (44.00...49.00)
6th speed 1/min: 1500
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12.0

Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 45.5...46.5
> 1000S.: (44.0...48.0)
7th speed 1/min: 900
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 47.0...50.0
> 1000S.: (46.0...51.0)
8th speed 1/min: 600
Charge press. hPa: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 41.0...42.0
> 1000S.: (39.0...44.0)

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm3/: 0.00...3.00
> 1000S.: -
Shutoff
electromagnet>volt: -
KSB/AFB
valve > Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 14.50...18.50
> 1000S.: (12.50...20.50)

Rest delivery:

1st speed 1/min: 600
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 4.00...6.00
> 1000S.: (3.00...7.00)
2nd speed 1/min: 500
KSB/AFB
valve > Volt: 12.0
Shutoff

electromagnet Volt: 12.0
Del. quantity cm3/: 5.50...8.50
> 1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm3/ : - 9.0...11.0 "
difference> 1000S.: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm3/: 0.0...3.0 z'
difference> 1000S.: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet Volt: 12.0

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
Charge press. hPa: -
TD-travel : -1.1...1.7 '
difference> mm: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Charge press. hPa: -
Supply pump-
pressure > : - 0.1...0.3 "
difference> bar: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm3/: 19.00...21.00
> 1000S.: (17.50...22.50)

Automatic starting fuel delivery:

1st speed 1/min: 220
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 52.00...78.00
> 1000S.: -

2nd speed 1/min: 350
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 35.00...45.00
> 1000S.: -

3rd speed 1/min: 100
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 50.0...80.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 1.0...1.4
LDA stroke mm: 5.2
Ya mm: 37.2...39.2
Yb mm: 36.6...45.4

Ajustement Potentiometer:

Angle for
pot. > °: 20.0
Supply voltage
pot. > volt: 5.0
Output volt
pot. > volt: 1.85

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
Edition : 03.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2150R637
Type number : 0 460 494 403
Customer Part-No. : 16700 8C001

Customer-specific information
Customer : MISSAN - MISA

Engine : GX-3

Power KW: 53

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 3.00...3.40
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 5.60...6.20
Shutoff
electromagnet>Volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min: 2150
Del. quantity cm3/
> 1000S.: 44.00...45.00
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 6.5...10.5
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2500
Del. quantity cm3/
> 1000S.: 12.00...18.00
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
TD travel mm: 0.8...1.6
> mm: -
electromagnet>Volt: 12.0
2nd speed 1/min: 1200
TD travel mm: 3.0...3.4
> mm: (2.5...3.9)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2150
TD travel mm: 8.80...9.60
> mm: (8.50...9.90)
Shutoff

electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900

Supply-pump

pressure> bar: 4.70...5.30
> bar: -

Shutoff

electromagnet>Volt: 12.0

2nd speed 1/min: 1200

Supply-pump

pressure> bar: 5.60...6.20
> bar: -

Shutoff

electromagnet>Volt: 12.0

3rd speed 1/min: 2150

Supply-pump

pressure> bar: 8.20...8.80
> bar: -

Shutoff

electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 600

Shutoff

electromagnet>Volt: 12.0

Overflow : 75.00...119.50

quantity> cm³/10s: (50.00...134.50)

2nd speed 1/min: 2150

Shutoff

electromagnet>Volt: 12.0

Overflow : 97.30...180.70

quantity> cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2700

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 0.00...5.00

> 1000S.: -

2nd speed 1/min: 2500

Shutoff

electromagnet Volt: 12.0

Del. quantity cm³/: 12.0...18.0

> 1000S.: (10.5...19.5)

3rd speed 1/min: 2350

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 29.3...37.3

> 1000S.: (27.8...38.8)

4th speed 1/min: 2150

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 44.0...45.0

> 1000S.: (43.2...45.8)

5th speed 1/min: 1800

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 42.60...45.60

> 1000S.: (41.60...46.60)

6th speed 1/min: 1200

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 41.3...44.3

> 1000S.: (40.3...45.3)

7th speed 1/min: 900

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 40.5...43.5

> 1000S.: (39.5...44.5)

8th speed 1/min: 600

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 39.5...42.5

> 1000S.: (38.5...43.5)

Electr. shutoff:

1st speed 1/min: 350

Del. quantity cm³/: 0.00...3.00

> 1000S.: -

Shutoff

electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 6.5...10.5

> 1000S.: (4.5...12.5)

2nd speed 1/min: 800

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 0.00...5.00

> 1000S.: -

3rd speed 1/min: 500

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 0.00...3.00

> 1000S.: -

4th speed 1/min: 250

Shutoff

electromagnet Volt: 12.0

Del. quantity cm³/: 27.0...33.0

> 1000S.: (25.0...35.0)

High Idle:

1st speed 1/mi: 500

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 5.0...13.0

> 1000S.: TLA-E = 4,7MM

Automatic starting fuel delivery:

1st speed 1/min: 270
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.00...90.00
> 1000s.: -

2nd speed 1/min: 400
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 10.00...50.00
> 1000s.: -

3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.0...75.0
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS	mm: 1.1...1.3
FH	mm: 4.3
TLA-E	mm: 4.7
XK	mm: KSB=1,2MM
XL	mm: (SCHRAUBE)
Ya	mm: 35.1...39.1
Yb	mm: 59.9...70.1

Ajustement Potentiometer:

Angle for
pot. > °: 25
Supply voltage
pot. > volt: 5.0
Output volt
pot. > volt: 0.8

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and

speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
Edition : 03.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2150R637-1
Type number : 0 460 494 404
Customer Part-No. : 16700 8C000

Customer-specific information
Customer : MISSAN - MISA

Engine : GX-3

Power KW: 53

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 3.00...3.40
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 5.60...6.20
Shutoff
electromagnet>Volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min: 2150
Del. quantity cm3/
> 1000S.: 44.00...45.00
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 6.5...10.5
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 6.00...10.0
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2500
Del. quantity cm3/
> 1000S.: 12.00...18.00
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
TD travel mm: 0.3...1.6
> mm: -
electromagnet>Volt: 12.0
2nd speed 1/min: 1200

TD travel mm: 3.0...3.4
 > mm: (2.5...3.9)
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2150
 TD travel mm: 8.80...9.60
 > mm: (8.50...9.90)
 Shutoff
 electromagnet>Volt: 12.0

 Supply-pump pressure characteristic:

 1st speed 1/min: 900
 Supply-pump
 pressure> bar: 4.70...5.30
 > bar: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1200
 Supply-pump
 pressure> bar: 5.60...6.20
 > bar: -
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2150
 Supply-pump
 pressure> bar: 8.20...8.80
 > bar: -
 Shutoff
 electromagnet>Volt: 12.0

 Overflow quantity at overflow valve:

 1st speed 1/min: 600
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 75.00...119.50
 quantity> cm3/10s: (50.00...134.50)
 2nd speed 1/min: 2150
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 97.30...180.70
 quantity> cm3/10s: (82.30...195.70)

 Delivery-quant. and breakaway char.:

 1st speed 1/min: 2700
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 0.00...5.00
 > 1000S.: -
 2nd speed 1/min: 2500
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 12.0...18.0
 > 1000S.: (10.5...19.5)
 3rd speed 1/min: 2350
 Shutoff
 electromagnet>Volt: 12.0

Del. quantity cm3/: 29.3...37.3
 > 1000S.: (27.8...38.8)
 4th speed 1/min: 2150
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 44.0...45.0
 > 1000S.: (43.2...45.8)
 5th speed 1/min: 1800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 42.60...45.60
 > 1000S.: (41.60...46.60)
 6th speed 1/min: 1200
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 41.3...44.3
 > 1000S.: (40.3...45.3)
 7th speed 1/min: 900
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 40.5...43.5
 > 1000S.: (39.5...44.5)
 8th speed 1/min: 600
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 39.5...42.5
 > 1000S.: (38.5...43.5)

Electr. shutoff:

1st speed 1/min: 350
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 Shutoff
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 6.5...10.5
 > 1000S.: (4.5...12.5)
 2nd speed 1/min: 800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 0.00...5.00
 > 1000S.: -
 3rd speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 4th speed 1/min: 250
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 27.0...33.0
 > 1000S.: (25.0...35.0)

High Idle:

1st speed 1/mi: 500

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm3/: 5.0...13.0

> 1000s.: TLA-E 4,7MM

Automatic starting fuel delivery:

1st speed 1/min: 270

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm3/: 50.00...90.00

> 1000s.: -

2nd speed 1/min: 400

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm3/: 10.00...50.00

> 1000s.: -

3rd speed 1/min: 100

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm3/: 45.0...75.0

> 1000s.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.2...5.6

MS mm: 1.1...1.3

FH mm: 4.3

TLA-E mm: 4.7

XK mm: KSB=1,2MM

XL mm: (SCHRAUBE)

Ya mm: 35.1...39.1

Yb mm: 59.9...70.1

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed

position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 s.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 03.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R486-2
Type number : 0 460 494 405
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : G8T-790 CA LAGUNA

Power KW: 60

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30. .0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.30...2.70
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.90...6.50
Shutoff
electromagnet>Volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 36.90...37.90
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 385
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 6.00...10.0
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
> 1000S.: 20.00...26.00
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: - 7,4...11.4 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
TD-travel
difference> mm: - 0.7...0.9 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 0.0...2.2
> mm: -
KSB/AFB
valve > Volt: 12.0
electromagnet>Volt: 12.0
2nd speed 1/min: 1000
TD travel mm: 0.6...1.4
> mm: (0.4...1.6)
KSB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
TD travel mm: 6.00...6.80
> mm: (5.80...7.00)
Shutoff
electromagnet>Volt: 12.0
4th speed 1/min: 1250
TD travel mm: 2.3...2.7
> mm: (2.0...3.0)

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure> bar: 4.40...5.00
> bar: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Supply-pump
pressure> bar: 5.90...6.50
> bar: -
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Supply-pump
pressure> bar: 7.90...8.50
> bar: -
Shutoff
electromagnet>Volt: 12.0

Overlow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet>Volt: 12.0

Overflow : 75.00...119.50
quantity> cm3/10s: (50.00...134.50)
2nd speed 1/min: 2300
Shutoff
electromagnet>Volt: 12.0
Overflow : 97.30...180.70
quantity> cm3/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2800
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 0.00...5.00
> 1000S.: -
2nd speed 1/min: 2600
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 20.0...26.0
> 1000S.: (19.0...27.0)
3rd speed 1/min: 2500
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 31.5...39.5
> 1000S.: (30.5...40.5)
4th speed 1/min: 2300
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 40.0...42.0
> 1000S.: (38.7...43.3)
5th speed 1/min: 2000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 39.30...41.30
> 1000S.: (38.00...42.60)
6th speed 1/min: 1250
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 36.9...37.9
> 1000S.: (35.1...39.7)
7th speed 1/min: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 36.2...39.2
> 1000S.: (35.4...40.0)
8th speed 1/min: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 35.0...38.0
> 1000S.: (34.2...38.8)

Electr. shutoff:

1st speed 1/min: 385
Del. quantity cm3/: 0.00...3.00
> 1000S.: -
Shutoff

electromagnet>volt: -
 Damper set qty.:
 LFG-setting:
 Idle delivery:
 1st speed 1/min: 385
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 12.00...16.00
 > 1000S.: (10.00...18.00)
 High Idle:
 1st speed 1/mi: 435
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 10.0...14.0
 > 1000S.: (8.00...16.00)
 Rest delivery:
 1st speed 1/min: 450
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 6.00...10.0
 > 1000S.: -
 Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 1st speed 1/min: 1250
 Inj.-qty. cm3/ : - 6.1...8.1 "
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Inj.-qty. cm3/: 2.0...8.0 Z'
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1250
 Charge press. hPa: ALFB
 Inj.-qty. cm3/: 2.0...8.0 Z:
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 TD-travel : - 0.9...1.5 '
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250

Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 :
 difference> mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12.0
 Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0
 1st speed 1/min: 125
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 22.5...23.5 **
 > 1000S.: (20.5...25.5)
 Automatic starting fuel delivery:
 1st speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 45.00...95.00
 > 1000S.: -
 2nd speed 1/min: 350
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 15.00...45.00
 > 1000S.: -
 3rd speed 1/min: 100
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 45.0...75.0
 > 1000S.: -
 Shutoff electromagnet:
 Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0
 Mounting and assembly dimensions:
 Designation
 K mm: 3.6...3.8

KF	mm: KOT
MS	mm: 0.8...1.0
XK	mm: MIKROSCH.
XL	mm: 0.8...3.0**
Ya	mm: 27.8...31.8
Yb	mm: 52.1...61.9

Remarks:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 03.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R486-3
Type number : 0 460 494 406
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : G8T-790 CA LAGUNA

Power KW: 60

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.30...2.70
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.90...6.50
Shutoff
electromagnet>Volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 36.90...37.90
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 385
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 6.00...10.0
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
> 1000S.: 20.00...26.00
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: - 7,4...11.4 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
TD-travel
difference> mm: - 0.7...0.9 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 0.0...2.2
> mm: -
KSB/AFB
valve > Volt: 12.0
electromagnet>Volt: 12.0
2nd speed 1/min: 1000
TD travel mm: 0.6...1.4
> mm: (0.4...1.6)
KSB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
TD travel mm: 6.00...6.80
> mm: (5.80...7.00)
Shutoff
electromagnet>Volt: 12.0
4th speed 1/min: 1250
TD travel mm: 2.3...2.7
> mm: (2.0...3.0)

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure> bar: 4.40...5.00
> bar: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Supply-pump
pressure> bar: 5.90...6.50
> bar: -
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Supply-pump
pressure> bar: 7.90...8.50
> bar: -
Shutoff
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet>Volt: 12.0

Overflow : 75.00...119.50
quantity> cm3/10s: (50.00...134.50)
2nd speed 1/min: 2300
Shutoff
electromagnet>Volt: 12.0
Overflow : 97.30...180.70
quantity> cm3/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 0.00...5.00
> 1000S.: -
2nd speed 1/min: 2600
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 20.0...26.0
> 1000S.: (19.0...27.0)
3rd speed 1/min: 2500
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 31.5...39.5
> 1000S.: (30.5...40.5)
4th speed 1/min: 2300
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 40.0...42.0
> 1000S.: (38.7...43.3)
5th speed 1/min: 2000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 39.30...41.30
> 1000S.: (38.00...42.60)
6th speed 1/min: 1250
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 36.9...37.9
> 1000S.: (35.1...39.7)
7th speed 1/min: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 36.2...39.2
> 1000S.: (35.4...40.0)
8th speed 1/min: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 35.0...38.0
> 1000S.: (34.2...38.8)

Electr. shutoff:

1st speed 1/min: 385
Del. quantity cm3/: 0.00...3.00
> 1000S.: -
Shutoff

electromagnet>volt: -
 Damper set qty.:
 LFG-setting:
 Idle delivery:
 1st speed 1/min: 385
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 12.00...16.00
 > 1000S.: (10.00...18.00)
 High Idle:
 1st speed 1/mi: 435
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 10.0...14.0
 > 1000S.: (8.00...16.00)
 Rest delivery:
 1st speed 1/min: 450
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 6.00...10.0
 > 1000S.: -
 Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 1st speed 1/min: 1250
 Inj.-qty. cm3/ : - 6.1...8.1 "
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Inj.-qty. cm3/: 2.0...8.0 Z'
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1250
 Charge press. hPa: ALFB
 Inj.-qty. cm3/: 2.0...8.0 Z:
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 TD-travel : - 0.9...1.5 '
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250

Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 :
 difference> mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12.0
 Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0
 1st speed 1/min: 125
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 22.5...23.5 **
 > 1000S.: (20.5...25.5)
 Automatic starting fuel delivery:
 1st speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 45.00...95.00
 > 1000S.: -
 2nd speed 1/min: 350
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 15.00...45.00
 > 1000S.: -
 3rd speed 1/min: 100
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 45.0...75.0
 > 1000S.: -
 Shutoff electromagnet:
 Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0
 Mounting and assembly dimensions:
 Designation
 K mm: 3.6...3.8

KF	mm: KOT
MS	mm: 0.8...1.0
XK	mm: MIKROSCH.
XL	mm: 0.8...3.0**
Ya	mm: 27.8...31.8
Yb	mm: 52.1...61.9

Remarks:

⋮

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 01.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R466-2
Type number : 0 460 494 407
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M718 NT19.L

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2.70...2.90
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 4.50...5.10
Shutoff
electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 51.50...52.50
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
> 1000S.: 40.00...41.00
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 800
Del. quantity cm3/
> 1000S.: 3.50...5.50
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 23.00...29.00
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...80.00
mind> 1000S.: 50.00

Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm3/
difference> 1000s.: - 8.0...16.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference> mm: - 0.8...0.9 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.7...2.9
> mm: (2.2...3.4)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 4.9...5.5
> mm: (4.5...5.9)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 7.60...8.20
> mm: (7.20...8.60)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.50...5.10
> bar: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.90...6.50
> bar: -
Shutoff
electromagnet>Volt: 12.0

3rd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.50...8.10
> bar: -
Shutoff
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 75.00...119.50
quantity> cm3/10s: (50.00...134.50)
2nd speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 97.30...180.70
quantity> cm3/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 450
LDA-stroke mm: 6.7
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 47.00...48.00
> 1000s.: (45.00...50.00)
2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...7.00
> 1000s.: -
3rd speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 11.0...19.0
> 1000s.: (10.0...20.0)
4th speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 23.0...29.0
> 1000s.: (21.0...31.0)
5th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 50.00...53.00
> 1000s.: (49.00...54.00)
6th speed 1/min: 1500
Charge press. hPa: 1000

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 51.5...52.5
 > 1000S.: (50.0...54.0)
 7th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 53.5...56.5
 > 1000S.: (52.5...57.5)
 8th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 40.0...41.0
 > 1000S.: (38.0...43.0)

Electr. shutoff:

1st speed 1/min: 450
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 Shutoff
 electromagnet>volt: -
 KSB/AFB
 valve > Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 12.00...16.00
 > 1000S.: (10.00...18.00)
 2nd speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 4.0...10.0
 > 1000S.: (2.5...11.5)

Rest delivery:

1st speed 1/min: 800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 3.50...5.50
 > 1000S.: (2.50...6.50)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm3/ : - 9.0...11.0 "

difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm3/: 4.0...6.0 Z'
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1500
 Charge press. hPa: ALFB
 Inj.-qty. cm3/: 4.0...6.0 Z:
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : - 0.7...1.3 '
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 :
 difference> mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: -
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 220
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 52.00...78.00
 > 1000S.: -

2nd speed 1/min: 400
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 25.00...45.00
 > 1000S.: -

3rd speed 1/min: 100

Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.0...80.0
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS	mm: 1.4...1.8
LDA stroke	mm: 6.7
Ya	mm: 37.2...39.2
Yb	mm: 38.2...46.8

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 01.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R508-2
Type number : 0 460 494 408
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M718 NT19.L

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30. .0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2.70...2.90
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 4.50...5.10
Shutoff
electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 51.50...52.50
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
> 1000S.: 40.00...41.00
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 800
Del. quantity cm3/
> 1000S.: 3.50...5.50
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 23.00...29.00
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...80.00
mind> 1000S.: 50.00

Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm3/
difference> 1000S.: - 8.0...16.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference> mm: - 0.8...0.9 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.7...2.9
> mm: (2.2...3.4)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 4.9...5.5
> mm: (4.5...5.9)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 7.60...8.20
> mm: (7.20...8.60)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.50...5.10
> bar: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.90...6.50
> bar: -
Shutoff
electromagnet>Volt: 12.0

3rd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.50...8.10
> bar: -
Shutoff
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 75.00...119.50
quantity> cm3/10s: (50.00...134.50)
2nd speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 97.30...180.70
quantity> cm3/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 450
LDA-stroke mm: 6.7
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 47.00...48.00
> 1000S.: (45.00...50.00)
2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...7.00
> 1000S.: -
3rd speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 11.0...19.0
> 1000S.: (10.0...20.0)
4th speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 23.0...29.0
> 1000S.: (21.0...31.0)
5th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 50.00...53.00
> 1000S.: (49.00...54.00)
6th speed 1/min: 1500
Charge press. hPa: 1000

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 51.5...52.5
 > 1000S.: (50.0...54.0)
 7th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 53.5...56.5
 > 1000S.: (52.5...57.5)
 8th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 40.0...41.0
 > 1000S.: (38.0...43.0)

Electr. shutoff:

1st speed 1/min: 450
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 Shutoff
 electromagnet>volt: -
 KSB/AFB
 valve > Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 12.00...16.00
 > 1000S.: (10.00...18.00)
 2nd speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 4.0...10.0
 > 1000S.: (2.5...11.5)

Rest delivery:

1st speed 1/min: 800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 3.50...5.50
 > 1000S.: (2.50...6.50)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm3/ : - 9.0..11.0 "

difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm3/: 4.0...6.0 Z'
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1500
 Charge press. hPa: ALFB
 Inj.-qty. cm3/: 4.0...6.0 Z:
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement: correttore anticipo iniezione (SV):

1st speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : - 0.7...1.3 '
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 :
 difference> mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: -
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0

1st speed 1/min: 1000
 Charge press. hPa: -
 KSB/AFB
 valve > Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 18.5..20.5**
 > 1000S.: (17.5...21.5)

Automatic starting fuel delivery:

1st speed 1/min: 220

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm3/: 52.00...78.00

> 1000s.: -

2nd speed 1/min: 400

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm3/: 25.00...45.00

> 1000s.: -

3rd speed 1/min: 100

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm3/: 50.0...80.0

> 1000s.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.2...5.6

MS mm: 1.4...1.8

MS1 mm: ** 1,85 V

LDA stroke mm: 6.7

Ya mm: 37.2...39.2

Yb mm: 38.2...46.8

Remarks:

:
:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in

residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R445-5
Type number : 0 460 494 409
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TF-L

Power KW: 67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC):-

Indicator setting
Piston stroke> mm: 0,3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Charge press. hPa: 1000
Setting value mm: 3.90...4.30
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.40...6.00
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 54.00...55.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 36.5...37.5
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
Del. quantity cm3/
> 1000S.: 15.0...17.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000S.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm3/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Overflow : 41.60...83.30
quantity> cm3/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm3/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 34.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 49.10...51.10
> 1000S.: (47.90...52.30)
6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 51.0...53.0
> 1000S.: (49.8...54.2)
7th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 54.0...55.0
> 1000S.: (52.3...56.7)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm³/: 46.80...49.80
> 1000S.: (45.30...51.30)
9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 36.50...37.50
> 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 8.0...9.0
> 1000S.: (6.5...10.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm³/: 45.50...60.50
> 1000S.: -

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 1.1...1.5
Ya	mm: 25.8...29.8
Yb	mm: 68.0...82.0

Remarks:

:
:
:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R445-6
Type number : 0 460 494 410
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TF-L

Power KW: 67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Charge press. hPa: 1000
Setting value mm: 3.90...4.30
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.40...6.00
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 54.00...55.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 36.5...37.5
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
Del. quantity cm3/
> 1000S.: 15.0...17.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000S.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm3/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Overflow : 41.60...83.30
quantity> cm3/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm3/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 34.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 49.10...51.10
> 1000S.: (47.90...52.30)
6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 51.0...53.0
> 1000S.: (49.8...54.2)
7th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 54.0...55.0
> 1000S.: (52.3...56.7)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm3/: 46.80...49.80
> 1000S.: (45.30...51.30)
9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 36.50...37.50
> 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 15.0...17.0
> 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 15.0...17.0
> 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 8.0...9.0
> 1000S.: (6.5...10.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm3/: 45.50...60.50
> 1000S.: -

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 1.1...1.5
Ya	mm: 25.8...29.8
Yb	mm: 68.0...82.0

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R445-7
Type number : 0 460 494 411
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TF-L

Power KW: 67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30. .0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Charge press. hPa: 1000
Setting value mm: 3.90...4.30
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.40...6.00
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 54.00...55.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 36.5...37.5
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
Del. quantity cm3/
> 1000S.: 15.0...17.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000S.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.0...16.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm3/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Overflow : 41.60...83.30
quantity> cm3/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm3/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 34.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 49.10...51.10
> 1000S.: (47.90...52.30)
6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 51.0...53.0
> 1000S.: (49.8...54.2)
7th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 54.0...55.0
> 1000S.: (52.3...56.7)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm3/: 46.80...49.80
> 1000S.: (45.30...51.30)
9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 36.50...37.50
> 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 15.0...17.0
> 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 15.0...17.0
> 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 8.0...9.0
> 1000S.: (6.5...10.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm3/: 45.50...60.50
> 1000S.: -

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 1.1...1.5
Ya	mm: 25.8...29.8
Yb	mm: 68.0...82.0

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R603-1
Type number : 0 460 494 413
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1.9 L UD MVEG2

Power KW: 55

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 111

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,8
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

E03

Charge press. hPa: 750
Setting value mm: 5.30...5.70
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.50...6.10
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
> 1000s.: 46.00...47.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
> 1000s.: 38.5...42.9
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
> 1000s.: 20.0...24.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
> 1000s.: 6.50...9.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
Charge press hPa: 750
Del. quantity cm3/
> 1000s.: 16.0...24.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.50...50.50
mind> 1000S.: 35.50
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
Charge press hPa: 750
TD travel mm: 3.00...3.80
> mm: (2.60...4.20)
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 5.30...5.70
> mm: (4.70...6.30)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 750
TD travel mm: 8.20...9.00
> mm: (7.80...9.40)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure> bar: 4.00...4.60
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure> bar: 5.50...6.10
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 750
Supply-pump
pressure> bar: 7.70...8.30
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0

Overflow : 43.00...112.5
quantity> cm³/10s: (28.00...127.5)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Overflow : 41.50...152.70
quantity> cm³/10s: (26.50...167.70)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...3.00
> 1000S.: -
3rd speed 1/min: 2525
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 18.0...22.0
> 1000S.: (16.0...24.00)
4th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 29.5...39.5
> 1000S.: (38.5...40.5)
5th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.20...47.20
> 1000S.: (44.00...48.40)
6th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 46.0...47.0
> 1000S.: (44.3...48.7)
7th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 38.5...42.9
> 1000S.: -

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 20.0...24.0
> 1000s.: (18.0...26.0)

High Idle:

1st speed 1/mi: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 14.0...22.0
> 1000s.: -

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 6.5...9.5
> 1000s.: (6.0...10.0)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.00...55.00
> 1000s.: -

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 31.00...51.00
> 1000s.: (31.00...51.00)

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.50...50.50
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS	mm: 1.0...1.4
Ya	mm: 36.0...40.0
Yb	mm: 48.6...58.4

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
Edition : 31.07.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R597-5
Type number : 0 460 494 414
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1.9L UD A3/B4

Power KW: 55

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 000

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0.8
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

E06

Charge press. hPa: 750
Setting value mm: 4.30...4.50
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.40...6.00
Shutoff
electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
> 1000s.: 50.00...51.00
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450
Del. quantity cm3/
> 1000s.: 37.2...43.2
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
> 1000s.: 16.0...18.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
> 1000s.: 7.00...8.00
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2600
Charge press hPa: 750
Del. quantity cm3/
> 1000s.: 9.0...13.0
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 32.50...47.50
mind> 1000S.: 32.50
Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 750
Inj.-qty. cm3/
difference> 1000S.: - 7.0...11.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1250
Charge press hPa: 750
TD-travel
difference> mm: - 1.9...2.1 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
Charge press hPa: 750
TD travel mm: 1.50...2.10
> mm: (1.00...2.60)
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 4.30...4.50
> mm: (3.60...5.20)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2150
Charge press hPa: 750
TD travel mm: 8.00...8.60
> mm: (7.50...9.10)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure> bar: 4.30...4.90
> bar: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump

pressure> bar: 5.40...6.00
> bar: -

Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2200
Charge press. hPa: 750
Supply-pump
pressure> bar: 7.40...8.00
> bar: -

Shutoff
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Overflow : 43.00...112.5
quantity> cm3/10s: (28.00...127.5)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.60...139.00
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
3rd speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 9.0...13.0
> 1000S.: (7.0...15.0)
4th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 32.5...42.5
> 1000S.: (31.5...43.5)
5th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 42.0...44.0
> 1000S.: (40.8...45.2)
6th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 50.0...51.0
> 1000S.: (48.3...52.7)

7th speed ~ 1/min: 450
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.2...43.2
> 1000S.: (34.7...45.7)

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 16.0...18.0
> 1000S.: (13.0...21.0)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 16.0...18.0
> 1000S.: (13.0...21.0)

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 7.0...8.0
> 1000S.: (5.5...9.5)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: 750
Inj.-qty. cm³/: - 4.5...6.5 "
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12.0

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Charge press. hPa: 750
Supply pump-

pressure > : - 0.1...0.3 "
difference> bar: -
Shutoff
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: ?

1st speed 1/min: 1000
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 34.00...36.00
> 1000S.: (32.00...38.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.00...55.00
> 1000S.: (35.00...55.00)

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 31.00...51.00
> 1000S.: (31.00...51.00)

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...43.00
> 1000S.: (32.50...47.50)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS	mm: 1.0...1.4
Ya	mm: 37.9...41.6
Yb	mm: 49.9...63.3

Remarks:

: SPALTMAß A = 0.8-3.0
:
Pump in stepped LDA

Ya = Distance between VE flange and

speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R604-1
Type number : 0 460 494 416
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1.9 L UD MVEG2

Power KW: 55

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30. .0.40

Calibrating nozzle-holder
assembly> : 1 688 901 111

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,8
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

E10

Charge press. hPa: 750
Setting value mm: 5.30...5.70
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.50...6.10
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
> 1000S.: 46.00...47.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
> 1000S.: 38.5...42.9
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 20.0...24.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 6.50...9.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
Charge press hPa: 750
Del. quantity cm3/
> 1000S.: 16.0...24.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.50...50.50
mind> 1000S.: 35.50
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
Charge press hPa: 750
TD travel mm: 3.00...3.80
> mm: (2.60...4.20)
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 5.30...5.70
> mm: (4.70...6.30)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 750
TD travel mm: 8.20...9.00
> mm: (7.80...9.40)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure> bar: 4.00...4.60
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure> bar: 5.50...6.10
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 750
Supply-pump
pressure> bar: 7.70...8.30
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0

Overflow : 43.00...112.5
quantity> cm³/10s: (28.00...127.5)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Overflow : 41.50...152.70
quantity> cm³/10s: (26.50...167.70)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...3.00
> 1000S.: -
3rd speed 1/min: 2525
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 18.0...22.0
> 1000S.: (16.0...24.00)
4th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 29.5...39.5
> 1000S.: (38.5...40.5)
5th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.20...47.20
> 1000S.: (44.00...48.40)
6th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 46.0...47.0
> 1000S.: (44.3...48.7)
7th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 38.5...42.9
> 1000S.: -

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 20.0...24.0
> 1000S.: (18.0...26.0)

High Idle:

1st speed 1/mi: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 14.0...22.0
> 1000S.: -

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 6.5...9.5
> 1000S.: (6.0...10.0)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.00...55.00
> 1000S.: -

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 31.00...51.00
> 1000S.: (31.00...51.00)

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.50...50.50
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS	mm: 1.0...1.4
Ya	mm: 36.0...40.0
Yb	mm: 48.6...58.4

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R471-3
Type number : 0 460 494 417
Customer Part-No. :

Customer-specific information
Customer : VW 1.9 L

Engine : UD T4

Power KW: 50.0

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 111

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.70...4.10
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.30...5.90
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 39.50...40.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (3.5)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 5.0...6.0
Shutoff
electromagnet Volt: 12.0
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm3/
> 1000S.: 13.00...17.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...90.00
mind> 1000S.: 40.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: - 7.0...13.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: - 0.9...1.1 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1250
 TD travel mm: 3.7...4.1
 > mm: (3.1...4.7)
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1700
 TD travel mm: 5.60...6.40
 > mm: (5.20...6.80)
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 750
 TD travel mm: 1.10...1.90
 > mm: (0.70...2.30)
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1250
 Supply-pump
 pressure> bar: 5.30...5.90
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1700
 Supply-pump
 pressure> bar: 6.60...7.20
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 750
 Supply-pump
 pressure> bar: 3.80...4.40
 > bar: -
 Shutoff
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
 Shutoff
 electromagnet>Volt: 12
 Overflow : 41.70...86.10
 quantity> cm3/10s: (26.70...101.10)
 2nd speed 1/min: 1850
 Shutoff
 electromagnet>Volt: 12
 Overflow : 55.60...139.00
 quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1650
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 0.0...3.0

> 1000S.: -
 2nd speed 1/min: 2400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 13.0...17.0
 > 1000S.: (11.0...19.0)
 3rd speed 1/min: 2250
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 24.0...34.0
 > 1000S.: (23.0...35.0)
 4th speed 1/min: 1850
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 40.0...42.0
 > 1000S.: (38.8...43.2)
 5th speed 1/min: 1250
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 39.50...40.50
 > 1000S.: (37.80...42.20)
 6th speed 1/min: 750
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 37.0...40.0
 > 1000S.: (35.5...41.5)
 7th speed 1/min: 450
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 36.0...42.0
 > 1000S.: (33.5...44.5)

Electr. shutoff:

1st speed 1/min: 425
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 5.5...7.5
 > 1000S.: (2.5...10.5)

High Idle:

1st speed 1/mi: 500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 5.5...7.5

> 1000S.: (2.5...10.5)

Rest delivery:

1st speed 1/min: 550
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 5.0...6.0
 > 1000S.: (3.5...7.5)

2nd speed 1/min: 515
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 5.5...7.5
 > 1000S.: (4.0...9.0)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm³/ : 0.0...3.0 z "
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 TD-travel : - 1.3...1.7 "
 difference> mm: - (0.9...2.1)
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Supply pump-
 pressure > : - 0.7...1.1 "
 difference> bar: - (0.5...1.3)
 Shutoff
 electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 21.0...23.0 *
 > 1000S.: (19.0...25.0)

Automatic starting fuel delivery:

1st speed 1/min: 380
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 25.0...45.0

> 1000S.: -

2nd speed 1/min: 180
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 40.0...90.0
 > 1000S.: -

3rd speed 1/min: 100
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 40.0...90.0
 > 1000S.: -

Shutoff electromagnet:

Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.1...5.5
MS	mm: 1.2...1.4
XK	mm: MIKROSCH.
XL	mm: 0.8...3.0 *
Ya	mm: 20.0...22.0
Yb	mm: 61.5...72.5

Remarks:

:
 :
 :
 Ya = Distance between VE flange and
 speed-control lever in idle
 position
 Measurement point = edge of control
 lever on drive end

Yb = Distance between VE flange and
 speed-control lever in rated speed
 position
 Measurement point = edge of control
 lever on distributor-head end

On initial measurement, screw in
 residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
 residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IVECO
Edition : 08.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2050R467-1
Type number : 0 460 494 419
Customer Part-No. :

Customer-specific information
Customer : IVECO SOFIM

Engine : 8140.97.2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: 0.2
> (from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Charge press. hPa: 1000
Setting value mm: 5.10...5.50
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1400
Charge press hPa: 1000
Setting value bar: 6.10...6.70
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 67.5...68.5

Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 3.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 41.5...42.5
Shutoff
electromagnet>Volt: 12

Residual-Delivery Setting

Speed 1/min: 550
Charge press. hPa: -
Del. quantity cm3/
> 1000S.: 0.5...5.5
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 35.00...41.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...74.00
mind> 1000S.: 50.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 1000
Inj.-qty. cm3/
difference> 1000S.: - 13.0..26.0 *
Shutoff

electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: - 0.7...0.9 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.2...3.0
> mm: (1.9...3.3)
electromagnet>Volt: 12.0
2nd speed 1/min: 1400
Charge press hPa: 1000
TD travel mm: 5.10...5.50
> mm: (4.80...5.80)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1800
Charge press hPa: 1000
TD travel mm: 8.10...8.90
> mm: (7.80...9.20)
Shutoff
electromagnet>Volt: 12.0
4th speed 1/min: 2050
Charge press hPa: 1000
TD travel mm: 9.60...10.4
> mm: (9.30...10.7)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.10...3.70
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.10...6.70
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2050
Charge press. hPa: 1000
Supply-pump
pressure> bar: 8.40...9.00
> bar: -
Shutoff

electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Overflow : 88.80...133.3
quantity> cm³/10s: (73.80...148.30)
2nd speed 1/min: 2050
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 97.20...180.50
quantity> cm³/10s: (82.20...195.50)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.0
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 47.5...48.5
> 1000s.: (45.5...50.5)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.0
> 1000s.: -
3rd speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.0...41.0
> 1000s.: (34.0...42.0)
4th speed 1/min: 2050
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 68.0...71.0
> 1000s.: (67.3...71.7)
5th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 67.5...68.5
> 1000s.: (66.0...70.0)
6th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 41.5...42.5
> 1000s.: (39.5...44.5)

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 10.5...14.5
> 1000S.: (9.5...15.5)
Dispersion cm³/: 2.5
> 1000S.: (2.5)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 11.0...15.0
> 1000S.: (10.0...16.0)

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 0.5...5.5
> 1000S.: -

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1000
Charge press. hPa: 1000
Inj.-qty. cm³/: -19.0...21.0
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1000
Charge press. hPa: 1000
Inj.-qty. cm³/: 4.0...6.0 Z'
difference> 1000S.: -
Shutoff
electromagnet Volt: 12.0

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: 1000
TD-travel : - 1.1...1.9 '

difference> mm: -
Shutoff
electromagnet>Volt: 12.0

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1000
Charge press. hPa: 1000
Supply pump-
pressure > : - 0.1...0.3 "
difference> bar: -
Shutoff
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 22.0...24.0
> 1000S.: (20.5...25.5)

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 36.0...48.0
> 1000S.: -

2nd speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.0...74.0
> 1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.0...74.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.6...6.0
MS mm: 1.1...1.5

FH mm: KSB=13MM
Ya mm: 41.3...43.3
Yb mm: 41.8...47.8

Ajustement Potentiometer:

Angle for
pot. > °: 25
Supply voltage
pot. > volt: 5.0
Output volt
pot. > volt: 2.1

Remarks:

:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.05.95
Test oil : ISO 4113
Combination No. : 0 401 438 015
Injection pump
Pump designation : PE8R120/500/6RS1508
EP type number : 0 411 428 002
Governor
Governor design. : RQV300...1150R6K
Governor no. : 0 421 415 006

Cust. part No. : 1 227 6687

Customer-spec. information
Customer : MWM
Motor : TBD 616-V16

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 085
Inlet press. bar : 3.0
Tolerance bar : + 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0

E20

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 4.95
Tolerance mm : + 0.05
test only : + 0.10
Rack travel in mm : 21.00
Tolerance mm : + 0.50
Firing order : 1- 2- 7- 8- 3- 4-
: 5- 6
Phasing : 0-30-45-75-90-120
: -315-345
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 14.40
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 387.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 0.93
Tolerance mm : ± 0.20

Rated speed rpm : 1215
guide sleeve
travel mm : 9.95
Tolerance mm : ± 0.15

Rated speed rpm : 336
guide sleeve
travel mm : 1.77
Tolerance mm : ± 0.25

Rated speed rpm : 386
guide sleeve
travel mm : 2.44
Tolerance mm : ± 0.25

Rated speed rpm : 790
guide sleeve
travel mm : 4.81
Tolerance mm : ± 0.25

Rated speed rpm : 1430
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 387.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

RATED SPEED

rack travel mm : 13.40
Rated speed rpm : 1195
Tolerance 1/min : ± 5

rack travel mm : 4.00
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50

LOW IDLE

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.40
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 11.40
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150

Pressure hPa : 1500
rack travel mm : 14.40

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1150
rack travel mm : 8.00

Rated speed rpm : 1150

Pressure hPa : 1030
rack travel mm : 14.30

Pressure hPa : 205
rack travel mm : 8.10

START CUT-OUT

Rated speed rpm : < 250
Check
speed 1/min : < 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 300.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

BREAKAWAY

Rack travel in mm : 13.40
Rated speed rpm : 1195
Tolerance 1/min : ± 5

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.07.95
Test oil : ISO 4113
Combination No. : 0 401 438 015
Injection pump
Pump designation : PE8R120/520/6RS1508
EP type number : 0 411 428 002
Governor
Governor design. : RQV300...1150R6K
Governor no. : 0 421 415 006

Cust. part No. : 1 227 6687

Customer-spec. information
Customer : MWM
Motor : TBD 616-V16

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 082
Inlet press. bar : 3.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.95
Tolerance mm : ± 0.05
test only : ± 0.10
Rack travel in mm : 21.00
Tolerance mm : ± 0.50
Firing order : 1- 2- 7- 8- 3- 4-
: 5- 6
Phasing : 0-30-45-75-90-120
: -315-345
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 14.40
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 387.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance

cm³/1000 strokes : 10.0
Check tolerance

cm³/1000S. : 14.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 0.93
Tolerance mm : ± 0.20

Rated speed rpm : 1215
guide sleeve
travel mm : 9.95
Tolerance mm : ± 0.15

Rated speed rpm : 336
guide sleeve
travel mm : 1.77
Tolerance mm : ± 0.25

Rated speed rpm : 386
guide sleeve
travel mm : 2.44
Tolerance mm : ± 0.25

Rated speed rpm : 790
guide sleeve
travel mm : 4.81
Tolerance mm : ± 0.25

Rated speed rpm : 1430
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1310

Rack travel in mm : 9.00
Tolerance mm : ± 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure

hPa : -
Del. quantity

cm³/1000 strokes : 387.0
Tolerance

cm³/1000 strokes : ± 1.0
Check tolerance

cm³/1000S. : ± 4.0
Speed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance

cm³/1000S. : 12.0

RATED SPEED

control lever
position degree : 121.0
tolerance degree : ± 4.0

rack travel mm : 13.40
Rated speed rpm : 1195
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1295
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : ± 0.10

Rated speed rpm : 200
CRT mm min. : > 6.50
Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 400
rack travel mm : 10.20
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 14.40
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1150
rack travel mm : 8.00
Tolerance mm : \pm 0.20

Rated speed rpm : 1150

Pressure hPa : 900
rack travel mm : 13.50
Tolerance mm : \pm 0.20

Pressure hPa : 310
rack travel mm : 9.00
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : < 250
Check
speed 1/min : < 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 310.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

BREAKAWAY

Rack travel in mm : 13.40
Rated speed rpm : 1195
Tolerance 1/min : \pm 5

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.05.95
Test oil : ISO 4113

Combination No. : 0 401 848 827

Injection pump
Pump designation : PE8P110A320LS3862
EP type number : 0 411 818 727

Governor
Governor design. : RQV350...1050PA1205
Governor no. : 0 421 814 124

Cust. part No. : 0210749802

Customer-spec. information

Customer : MB-NFZ
Motor : OM442
Power KW : 195.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance L/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 115.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 3.5

Spreed
Tolerance
cm³/1000 strokes : 8.5

Check tolerance
cm³/1000S. : 13.0

Rated speed rpm : 350

Rack travel in mm : 7.70
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.5

Spreed
Tolerance
cm³/1000 strokes : 6.5
Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.53
Tolerance mm : + 0.25

Rated speed rpm : 1107
guide sleeve
travel mm : 8.73
Tolerance mm : + 0.25

Rated speed rpm : 880
guide sleeve
travel mm : 5.84
Tolerance mm : + 0.25

Rated speed rpm : 432
guide sleeve
travel mm : 3.12
Tolerance mm : + 0.25

Rated speed rpm : 482
guide sleeve
travel mm : 3.74
Tolerance mm : + 0.25

Rated speed rpm : 590

guide sleeve
travel mm : 4.17
Tolerance mm : + 0.25

Rated speed rpm : 1159
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1250
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1110

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5
Spreed
Tolerance
cm³/1000 strokes : 8.5
Check tolerance
cm³/1000S. : 13.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : + 4.0

rack travel mm : 11.00
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1145
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 7.70
Tolerance mm : \pm 0.10

Rated speed rpm : 250
CRT mm min. : $>$ 9.70

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.00
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 12.00
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $<$ 270
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Spreed
Tolerance
cm³/1000 strokes : 11.0
Check tolerance
cm³/1000S. : 14.0

BREAKAWAY

F01

Rack travel in mm : 11.00
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 7.70
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Spreed
Tolerance
cm³/1000 strokes : 6.5
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.11.93
Test oil : ISO 4113
Combination No. : 0 401 878 717B
Injection pump
Pump designation : PE8P110A320LS3853-1
EP type number : 0 411 818 726
Governor
Governor design. : RSV400...1000P1A554
Governor no. : 0 421 833 376
Cust. part No. : 9273967

Customer-spec. information
Customer : LIEBHERR
Motor : D 9308 T
Power KW : 255.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

F02

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.85
Tolerance mm : ± 0.05
test only : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 0.50
Firing order : 1- 8- 7- 2- 6
 : - 3- 5- 4
Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 900
Rack travel in mm : 13.45
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 167.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 4.0
Spreed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 7.5

RATED SPEED

control Lever
position degree : 100.0
tolerance degree : \pm 4.0

rack travel mm : 12.45
Rated speed rpm : 945
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1000
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1100

rack travel mm : 4.00
Rated speed rpm : 1030

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.70

Testing:

Rated speed rpm : 400
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.45
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : 14.90
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1500
rack travel mm : 13.45
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 620
rack travel mm : 12.80
Tolerance mm : \pm 0.10

Pressure hPa : 685
rack travel mm : 13.20
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.45
Rated speed rpm : 945
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.04.89
Test oil : ISO 4113

Combination No. : 0 402 046 751

Injection pump
Pump designation : PES6P110A820LS3131
EP type number : 0 412 016 715

Governor
Governor design. : RQ300/1100PA723-
Governor no. : 0 421 801 265

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM427H
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.35
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 141.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 8.0

Del. quantity
cm3/1000 strokes : 17.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0

Spreed
Tolerance
cm3/1000 strokes : 4.5
Check tolerance
cm3/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 200
guide sleeve
travel mm : 0.30
Tolerance mm : + 0.30

Rated speed rpm : 1100
guide sleeve
travel mm : 5.95
Tolerance mm : + 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 2.65
Tolerance mm : + 0.05

Rated speed rpm : 550
guide sleeve
travel mm : 5.95
Tolerance mm : + 0.05

GUIDE SLEEVE POSITION

Rated speed rpm : 550

Rack travel in mm : 15.55
Tolerance mm : + 0.85

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 141.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spreed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 8.0

RATED SPEED

control lever
position degree : 97.0
tolerance degree : + 3.0

rack travel mm : 10.20
Rated speed rpm : 1145
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 3.0

Testing:

Rated speed rpm : 300
rack travel mm : 7.20
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 380
Tolerance 1/min : + 20

Rated speed rpm : 100

CRT mm min. : > 8.80

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 11.15
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : < 220
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

BREAKAWAY

Rack travel in mm : 10.20
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 17.0

F07

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.04.95
Test oil : ISO 4113

Combination No. : 0 402 046 824

Injection pump
Pump designation : PES6P120A320RS3279
: -1
EP type number : 0 412 026 758

Governor
Governor design. : RQ275/1050PA999-5
Governor no. : 0 421 801 663

Cust. part No. : CCEP-5112B 66-175

Customer-spec. information

Customer : RVI
Motor : MIHR 062045 A/3
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 0.50

BASIC SETTING

Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 160.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -4.50
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 2.35
Tolerance mm : \pm 0.10

Rated speed rpm : 1126
guide sleeve
travel mm : 6.38
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 582
guide sleeve
travel mm : 5.14
Tolerance mm : \pm 0.10

Rated speed rpm : 710
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1380
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 750

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 160.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 274.0
tolerance degree : \pm 4.0

rack travel mm : -1.00
Rated speed rpm : 1138
Tolerance 1/min : \pm 8

rack travel mm : -7.20
Rated speed rpm : 1245
Tolerance 1/min : \pm 15

rack travel mm : -10.75
Tolerance mm : \pm 0.55
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 253.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -4.50
Tolerance mm : \pm 0.10

rack travel mm : -9.25
Rated speed rpm : 580
Tolerance 1/min : \pm 20

Rated speed rpm : 200

CRT mm max. : $<$ -3.00

TORQUE CONTROL

Rated speed rpm : 700
Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -1.20
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 220
rack travel mm : -0.45
Tolerance mm : \pm 0.15

Pressure hPa : 160
rack travel mm : -0.85
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $<$ 195
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 156.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 114.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1138
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -4.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.05.95
Test oil : ISO 4113
Combination No. : 0 402 046 827
Injection pump
Pump designation : PES6P120A32ORS3284
EP type number : 0 412 026 749
Governor
Governor design. : RQ275/1050PA999-3
Governor no. : 0 421 801 598

Cust. part No. : CCEP5119A

Customer-spec. information
Customer : RVI
Motor : MIDR/PR 062045
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 071
Inlet press. bar : 2.5
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 155.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance	
cm ³ /1000S.	: 9.0
Rated speed rpm	: 275
Rack travel in mm	: -5.40
Tolerance mm	: ± 0.20
Del. quantity	
cm ³ /1000 strokes	: 21.0
Tolerance	
cm ³ /1000 strokes	: ± 2.0
Check tolerance	
cm ³ /1000S.	: ± 5.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 600
Rack travel in mm	: 20.00
Tolerance mm	: ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm ³ /1000 strokes	: 155.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 9.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1118
Tolerance 1/min	: ± 8
rack travel mm	: -6.30
Rated speed rpm	: 1205

Tolerance 1/min	: ± 15
rack travel mm	: -9.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1350

LOW IDLE

control lever	
position degree	: 252.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 275
rack travel mm	: -5.40
Tolerance mm	: ± 0.10

rack travel mm	: -8.10
Rated speed rpm	: 340
Tolerance 1/min	: ± 20

Rated speed rpm	: 200
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CRT mm max.	: < -4.00
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TORQUE CONTROL

Rated speed rpm	: 1050
Tolerance mm	: ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	: 500
Pressure hPa	: 1000

MEASUREMENT

Pressure hPa	: -
Rated speed rpm	: 500
rack travel mm	: -2.20
Tolerance mm	: ± 0.10

Rated speed rpm	: 500
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Pressure hPa	: 360
rack travel mm	: -0.40
Tolerance mm	: ± 0.20

Pressure hPa	: 200
rack travel mm	: -1.45
Tolerance mm	: ± 0.05

START CUT-OUT

Rated speed rpm : < 195
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 149.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 81.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1118
Tolerance 1/min : ± 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -5.40
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.05.95
Test oil : ISO 4113
Combination No. : 0 402 046 829
Injection pump
Pump designation : PES6P120A320RS3284
EP type number : 0 412 026 749
Governor
Governor design. : RQV275...1050PA995
: -1
Governor no. : 0 421 813 941
Cust. part No. : CCEP 5120A 66-177

Customer-spec. information

Customer : RVI
Motor : MIDR06.20.45 B/3
Power KW : 195.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 071
Inlet press. bar : 2.5
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.55
Tolerance mm : ± 0.05
test only : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 157.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -5.20
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1220

Rack travel in mm : 10.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 157.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance

cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 300.0
tolerance degree : ± 4.0

rack travel mm : -1.00

Rated speed rpm : 1125
Tolerance 1/min : ± 5

rack travel mm : -6.70
Rated speed rpm : 1220
Tolerance 1/min : ± 15

rack travel mm : -10.20
Tolerance mm : ± 0.55
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 247.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -5.20
Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm max. : < -3.60

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1050
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -1.35
Tolerance mm : ± 0.15

Rated speed rpm : 500

Pressure hPa : 130
rack travel mm : -1.00
Tolerance mm : ± 0.10

Pressure hPa : 240
rack travel mm : -0.35
Tolerance mm : +- 0.05

START CUT-OUT

Rated speed rpm : < 210
Check
speed 1/min : < 230

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1125
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -5.20

Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.05.95
Test oil : ISO 4113
Combination No. : 0 402 046 836
Injection pump
Pump designation : PES6P120A320RS3303
EP type number : 0 412 026 755
Governor
Governor design. : RQV275...1050PA1038K
Governor no. : 0 421 815 313

Cust. part No. : CCEP-5129B 66-195

Customer-spec. information

Customer : RVI
Motor : MIDR 062045 J/3
Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 071

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30

Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 157.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Del. quantity
cm3/1000 strokes : 24.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 5.0

Spreed
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 1.34
Tolerance mm : \pm 0.25

Rated speed rpm : 1140
guide sleeve
travel mm : 9.03
Tolerance mm : \pm 0.25

Rated speed rpm : 740
guide sleeve
travel mm : 6.16
Tolerance mm : \pm 0.25

Rated speed rpm : 336
guide sleeve
travel mm : 2.38
Tolerance mm : \pm 0.25

Rated speed rpm : 386
guide sleeve
travel mm : 3.12
Tolerance mm : \pm 0.25

Rated speed rpm : 440
guide sleeve
travel mm : 3.94
Tolerance mm : \pm 0.25

Rated speed rpm : 1530
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1330

Rack travel in mm : 9.90
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 157.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spreed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 56.0
tolerance degree : \pm 4.0

control lever
position degree : 287.0
tolerance degree : \pm 4.0

rack travel mm : -1.00
Rated speed rpm : 1110
Tolerance 1/min : \pm 5

rack travel mm : -7.00
Rated speed rpm : 1240
Tolerance 1/min : \pm 15

rack travel mm : -10.55
Tolerance mm : \pm 0.55
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 242.0
tolerance degree : \pm 4.0

control lever
position degree : 12.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -5.50
Tolerance mm : \pm 0.20

Rated speed rpm : 200

CRT mm max. : $<$ -4.70

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 700
rack travel mm : -0.80
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : $<$ 235
Check
speed 1/min : $<$ 255

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 137.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1110
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : \pm 15.0

Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.01.95
Test oil : ISO 4113

Combination No. : 0 402 046 855

Injection pump
Pump designation : PE6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQV325...1300PA1119
Governor no. : 0 421 814 083

Cust. part No. : 1284418/4

Customer-spec. information
Customer : DAF
Motor : NS156M
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 325

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + 2.5
Check tolerance
cm³/1000S. : + 5.0

Spread
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 15.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
guide sleeve
travel mm : 1.33
Tolerance mm : + 0.15

Rated speed rpm : 1353
guide sleeve
travel mm : 8.29
Tolerance mm : + 0.20

Rated speed rpm : 900
guide sleeve
travel mm : 4.92
Tolerance mm : + 0.25

Rated speed rpm : 405
guide sleeve
travel mm : 2.07
Tolerance mm : + 0.25

Rated speed rpm : 455
guide sleeve
travel mm : 2.52
Tolerance mm : + 0.25

Rated speed rpm : 530

guide sleeve
travel mm : 2.93
Tolerance mm : + 0.25

Rated speed rpm : 1640
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1450
Rack travel in mm : 10.80
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

RATED SPEED

control lever
position degree : 122.0
tolerance degree : + 4.0

rack travel mm : 10.85
Rated speed rpm : 1342
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1460
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 83.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 225
CRT mm min. : $>$ 6.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1300
rack travel mm : 11.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 7.35
Tolerance mm : \pm 0.20

Rated speed rpm : 600

Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Pressure hPa : 200
rack travel mm : 8.40
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 98.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 1342
Tolerance 1/min : \pm 5

LOW IDLE

Rated speed rpm : 325
rack travel mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 15.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.01.95
Test oil : ISO 4113

Combination No. : 0 402 046 856

Injection pump
Pump designation : PE6P110A320RS3329Z
EP type number : 0 412 016 744

Governor
Governor design. : RQV325...1300PA1119
Governor no. : 0 421 814 083

Cust. part No. : 1284417/5

Customer-spec. information

Customer : DAF
Motor : NS133M
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 146.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 325

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000S. : + 5.0

Spread
Tolerance
cm³/1000 strokes : 12.0

Check tolerance
cm³/1000S. : 15.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
guide sleeve
travel mm : 1.33
Tolerance mm : + 0.15

Rated speed rpm : 1353
guide sleeve
travel mm : 8.29
Tolerance mm : + 0.20

Rated speed rpm : 900
guide sleeve
travel mm : 4.92
Tolerance mm : + 0.25

Rated speed rpm : 405
guide sleeve
travel mm : 2.07
Tolerance mm : + 0.25

Rated speed rpm : 455
guide sleeve
travel mm : 2.52
Tolerance mm : + 0.25

Rated speed rpm : 530

guide sleeve
travel mm : 2.93
Tolerance mm : + 0.25

Rated speed rpm : 1640
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1450

Rack travel in mm : 10.80
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 146.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

RATED SPEED

control lever
position degree : 122.0
tolerance degree : + 4.0

rack travel mm : 10.85
Rated speed rpm : 1342
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1460
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 83.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 225
CRT mm min. : $>$ 6.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1300
rack travel mm : 11.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 6.60
Tolerance mm : \pm 0.20

Rated speed rpm : 600

Pressure hPa : 310
rack travel mm : 10.55
Tolerance mm : \pm 0.05

Pressure hPa : 130
rack travel mm : 7.85
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 1342
Tolerance 1/min : \pm 5

LOW IDLE

Rated speed rpm : 325
rack travel mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 15.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.01.95
Test oil : ISO 4113
Combination No. : 0 402 046 861
Injection pump
Pump designation : PE6P110A320RS3329
EP type number : 0 412 016 743
Governor
Governor design. : RQ325/1300PA1150
Governor no. : 0 421 801 716

Cust. part No. : 1284420/4

Customer-spec. information
Customer : DAF
Motor : NS156M
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

G01

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 144.0

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 4.0

Speed	
Tolerance	
cm ³ /1000 strokes :	4.0

Check tolerance	
cm ³ /1000S. :	7.5

Rated speed rpm :	325
-------------------	-----

Rack travel in mm :	5.20
Tolerance mm :	+ 0.10

Del. quantity	
cm ³ /1000 strokes :	26.0

Tolerance	
cm ³ /1000 strokes :	+ 2.5

Check tolerance	
cm ³ /1000S. :	+ 5.0

Speed	
Tolerance	
cm ³ /1000 strokes :	12.0

Check tolerance	
cm ³ /1000S. :	15.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	325
guide sleeve	
travel mm :	1.99
Tolerance mm :	+ 0.10

Rated speed rpm :	1351
guide sleeve	
travel mm :	6.37
Tolerance mm :	+ 0.10

Rated speed rpm :	1300
guide sleeve	
travel mm :	6.00
Tolerance mm :	+ 0.10

Rated speed rpm :	427
guide sleeve	
travel mm :	3.54
Tolerance mm :	+ 0.10

Rated speed rpm :	590
guide sleeve	
travel mm :	6.00
Tolerance mm :	+ 0.10

Rated speed rpm :	1570
guide sleeve	
travel mm :	11.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	650
-------------------	-----

Rack travel in mm :	20.00
Tolerance mm :	+ 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1000
-------------------	------

Aneroid pressure	
hPa :	1000

Del. quantity	
cm ³ /1000 strokes :	144.0

Tolerance	
cm ³ /1000 strokes :	+ 1.0

Check tolerance	
cm ³ /1000S. :	+ 4.0

Speed	
Tolerance	
cm ³ /1000 strokes :	4.0

Check tolerance	
cm ³ /1000S. :	7.5

RATED SPEED

control lever	
position degree :	93.0
tolerance degree :	+ 4.0

rack travel mm :	10.85
Rated speed rpm :	1345
Tolerance 1/min :	+ 5

rack travel mm :	4.00
Rated speed rpm :	1450
Tolerance 1/min :	+ 15

rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1600

LOW IDLE

control lever	
position degree :	72.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	325
rack travel mm :	4.50
Tolerance mm :	+ 0.10

rack travel mm : 2.00
Rated speed rpm : 415

Rated speed rpm : 225

CRT mm min. : > 5.90

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1300
rack travel mm : 11.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 7.35
Tolerance mm : \pm 0.20

Rated speed rpm : 600

Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Pressure hPa : 200
rack travel mm : 8.40
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 98.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 1345
Tolerance 1/min : \pm 5

LOW IDLE

Rated speed rpm : 325
rack travel mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.06.95
Test oil : ISO 4113

Combination No. : 0 402 046 870

Injection pump
Pump designation : PES6P120A320RS3303
: -1
EP type number : 0 412 026 782

Governor
Governor design. : RQV275...1050PA1038
: -1K
Governor no. : 0 421 815 478

Cust. part No. : CCEP-5129C 66-195

Customer-spec. information

Customer : RVI
Motor : MIDR 062045 J/3
Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

G04

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 159.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Del. quantity
cm3/1000 strokes : 27.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 5.0

Spreed
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 1.29
Tolerance mm : \pm 0.20

Rated speed rpm : 1143
guide sleeve
travel mm : 9.05
Tolerance mm : \pm 0.15

Rated speed rpm : 742
guide sleeve
travel mm : 6.16
Tolerance mm : \pm 0.25

Rated speed rpm : 337
guide sleeve
travel mm : 2.38
Tolerance mm : \pm 0.25

Rated speed rpm : 387
guide sleeve
travel mm : 3.12
Tolerance mm : \pm 0.25

Rated speed rpm : 440
guide sleeve
travel mm : 3.94
Tolerance mm : \pm 0.25

Rated speed rpm : 1530
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1250

Rack travel in mm : 10.00
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 159.0
Tolerance

cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 4.0

Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 295.0
tolerance degree : \pm 4.0

rack travel mm : -1.00
Rated speed rpm : 1110
Tolerance 1/min : \pm 8

rack travel mm : -7.00
Rated speed rpm : 1230
Tolerance 1/min : \pm 15

rack travel mm : -10.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 250.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -5.70
Tolerance mm : \pm 0.20

Rated speed rpm : 200
CRT mm max. : < -4.30
Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1050
Rated speed rpm : 700
rack travel mm : -1.05
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : < 225
Check
speed 1/min : < 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 151.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1110
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 207.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113

Combination No. : 0 402 076 748

Injection pump
Pump designation : PES6P110A720RS3305
: -1
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.5
Tolerance bar : ± 1.5

607

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 165.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.5

Spreed
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.40
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 36.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 5.5

Spreed
Tolerance
cm3/1000 strokes : 4.5

Check tolerance
cm3/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1100

Del. quantity
cm3/1000 strokes : 165.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.5

Spreed
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

RATED SPEED

control lever
position degree : 108.0
tolerance degree : + 4.0

rack travel mm : 10.25
Rated speed rpm : 1040
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1095
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1260

rack travel mm : 4.00
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 78.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 3.90

Testing:

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.25
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 11.25
Tolerance mm : + 0.10

Rated speed rpm : 500
rack travel mm : 11.25

Tolerance mm : \pm 0.10
Rated speed rpm : 450
rack travel mm : 12.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1100
rack travel mm : 11.25
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 9.75
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 650
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Pressure hPa : 550
rack travel mm : 10.25
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 186.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 152.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.25
Rated speed rpm : 1040
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113

Combination No. : 0 402 076 748A

Injection pump
Pump designation : PES6P110A72ORS3305
: -1
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : + 1.5

G10

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.25
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 165.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.5

Spreed
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.40
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 36.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 5.5

Spreed
Tolerance
cm3/1000 strokes : 4.5

Check tolerance
cm3/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1100

Del. quantity
cm3/1000 strokes : 165.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.5

Spreed
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

RATED SPEED

control lever
position degree : 108.0
tolerance degree : + 4.0

rack travel mm : 10.25
Rated speed rpm : 1025
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1095
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1260

rack travel mm : 4.00
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 78.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 3.90

Testing:

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.25
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 11.25
Tolerance mm : + 0.10

Rated speed rpm : 500
rack travel mm : 11.25

Tolerance mm : \pm 0.10
Rated speed rpm : 450
rack travel mm : 12.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1100
rack travel mm : 11.25
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 9.75
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 650
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Pressure hPa : 550
rack travel mm : 10.25
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 186.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 152.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.25
Rated speed rpm : 1025
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113

Combination No. : 0 402 076 7488

Injection pump
Pump designation : PES6P110A720RS3305
: -1
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9273570

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 179.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.40
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.5

Spread
Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 179.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

RATED SPEED

control lever
position degree : 100.0
tolerance degree : + 4.0

rack travel mm : 10.30
Rated speed rpm : 925
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 975
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1125

rack travel mm : 4.00
Rated speed rpm : 995

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 3.90

Testing:

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 11.35
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1300
rack travel mm : 11.35

Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : 650
Rated speed rpm : 550
rack travel mm : 10.25
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 640
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Pressure hPa : 560
rack travel mm : 10.55
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.30
Rated speed rpm : 925
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113
Combination No. : 0 402 076 748C
Injection pump
Pump designation : PES6P110A720RS3305
: -1
EP type number : 0 412 016 742
Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9275362

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power kW : 220.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Overflow quantity
min. l/h : 160
Tolerance l/h : ± 10.0
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.20

Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30

Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.85

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 200.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.40
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.5

Spread
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 200.0
Tolerance

cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

RATED SPEED

control lever
position degree : 109.0
tolerance degree : + 4.0

rack travel mm : 10.85
Rated speed rpm : 925
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 975
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1125

rack travel mm : 4.00
Rated speed rpm : 995

LOW IDLE

control lever
position degree : 78.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 3.90

Testing:

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 11.85
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1300
rack travel mm : 11.85
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 9.65
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 800
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Pressure hPa : 670
rack travel mm : 10.25
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 925
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113
Combination No. : 0 402 076 748E
Injection pump
Pump designation : PES6P110A720RS3305
: -1
EP type number : 0 412 016 742
Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9277045

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 162.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.40

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.5

Spread
Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 162.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

RATED SPEED

control lever
position degree : 109.0
tolerance degree : + 4.0

rack travel mm : 10.85
Rated speed rpm : 1045
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1100
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1130

rack travel mm : 4.00
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 78.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 3.90

Testing:

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 10.75
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 10.75
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.00
Tolerance mm : \pm 0.10

Rated speed rpm : 500

Pressure hPa : 535
rack travel mm : 10.45
Tolerance mm : \pm 0.05

Pressure hPa : -
rack travel mm : 9.95
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 1045
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.40
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.06.95
Test oil : ISO 4113

Combination No. : 0 402 076 771

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV650...1100P8A566
: -1
Governor no. : 0 421 833 452

Cust. part No. :

Customer-spec. information
Customer : FNH-GEOTECH
Power KW : 201.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Test hydr. locking device for starting
with 800...1200 hPa air pressure.

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Check
tolerance °NW : ± 0.25

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 166.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 5.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.80
Tolerance mm : \pm 0.20

Del. quantity
cm3/1000 strokes : 23.0

Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 6.0

Spread
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure

hPa : 1600

Del. quantity
cm3/1000 strokes : 166.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 5.0

Spread

Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 104.0
tolerance degree : \pm 4.0

rack travel mm : 4.00
Rated speed rpm : 1175

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.30

Testing:

Rated speed rpm : 650
rack travel mm : 4.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 750

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 12.40
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 12.40
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.00
Tolerance mm : \pm 0.15

Rated speed rpm : 500

Pressure hPa : 1125
rack travel mm : 12.00
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 184.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 86.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 650
rack travel mm : 4.80
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.05.95
Test oil : ISO 4113

Combination No. : 0 402 076 776

Injection pump
Pump designation : PES6P110A720RS3305
: -2
EP type number : 0 412 016 750

Governor
Governor design. : RSV300...1100P1A598
Governor no. : 0 421 833 473

Cust. part No. : 9278136

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

G25

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 156.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.5

Spreed
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.80
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 13.0

Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 5.5

Spreed
Tolerance
cm3/1000 strokes : 4.5
Check tolerance
cm3/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 156.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 3.5
Spreed

Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 7.5

RATED SPEED

control lever
position degree : 97.0
tolerance degree : \pm 4.0

rack travel mm : 9.30
Rated speed rpm : 940
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 975
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1150

rack travel mm : 4.00
Rated speed rpm : 985

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.30

Testing:

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 10.30
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 10.30

Tolerance mm : \pm 0.10
Rated speed rpm : 500
rack travel mm : 10.30
Tolerance mm : \pm 0.10

Check tolerance
cm³/1000S. : 7.5

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

BREAKAWAY

Rack travel in mm : 9.30
Rated speed rpm : 940
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 30.05.95
Test oil : ISO 4113

Combination No. : 0 402 076 776A

Injection pump
Pump designation : PES6P110A720RS3305
: -2
EP type number : 0 412 016 750

Governor
Governor design. : RSV300...1100P1A598
Governor no. : 0 421 833 473

Cust. part No. : 9278136

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 156.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.5

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.5

Spreed
Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 156.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.5

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

RATED SPEED

rack travel mm : 9.30
Rated speed rpm : 940
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1150

rack travel mm : 4.00
Rated speed rpm : 985

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.30

Testing:

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 10.30
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 10.30
Tolerance mm : + 0.10

Rated speed rpm : 500
rack travel mm : 10.30
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

BREAKAWAY

Rack travel in mm : 9.30
Rated speed rpm : 940
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.06.95
Test oil : ISO 4113

Combination No. : 0 402 610 804

Injection pump
Pump designation : PE12P120A500/5RS7376
EP type number : 0 412 620 843

Governor
Governor design. :
Governor no. :

Cust. part No. : 1 2277 436

Customer-spec. information
Customer : MWM
Motor : TBD 616-V12
Power KW : 648.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

H03

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.60
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 2- 9-10- 5- 6
: - 11- 12- 3- 4
: - 7- 8

Phasing : 0-30-60-90-120-150
: -180-210-240-270
: -300-330

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.20

Tolerance mm : + 0.20

Del. quantity

cm³/1000 strokes : 30.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 6.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 285.0

Tolerance

cm³/1000 strokes : + 1.0

Check tolerance

cm³/1000S. : + 4.0

Speed

Tolerance

cm³/1000 strokes : 6.0

Check tolerance

cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 750

rack travel mm : 12.35

Tolerance mm : + 0.05

LOW IDLE

Rated speed rpm : 325

rack travel mm : 4.20

Tolerance mm : + 0.20

Del. quantity

cm³/1000 strokes : 30.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 6.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.06.95
Test oil : ISO 4113

Combination No. : 0 402 618 806

Injection pump
Pump designation : PE8P120A500/5RS7377
EP type number : 0 412 628 904

Governor
Governor design. :
Governor no. :

Cust. part No. : 1 2277 429

Customer-spec. information
Customer : MWM
Motor : TBD 616-V16
Power KW : 864.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

H05

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.60
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 2- 7- 8- 3- 4-
: 5- 6

Phasing : 0-30-45-75-90-120
: -315-345

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.20

Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 750

rack travel mm : 12.35

Tolerance mm : ± 0.05

LOW IDLE

Rated speed rpm : 325

rack travel mm : 4.20

Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.07.95
Test oil : ISO 4113
Combination No. : 0 402 618 807
Injection pump
Pump designation : PE8P120A500/5RS7378
EP type number : 0 412 628 905
Governor
Governor design. :
Governor no. :

Cust. part No. : 1 2277 428

Customer-spec. information
Customer : MWM
Motor : TBD 616-V16
Power KW : 864.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

H07

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.60
Tolerance mm : ± 0.05
test only : ± 0.10
Rack travel in mm : 13.00
Tolerance mm : ± 0.50
Firing order : 1- 2- 5- 6- 3- 4
 : - 7- 8
Phasing : 0-30-45-75-270-300
 : -315-345
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750
Rack travel in mm : 12.35
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 285.0
Tolerance
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000s. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.20

Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 750

rack travel mm : 12.35

Tolerance mm : ± 0.05

LOW IDLE

Rated speed rpm : 325

rack travel mm : 4.20

Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.07.95

Test oil : ISO 4113

Combination No. : 0 402 618 808

Injection pump

Pump designation : PE8P120A500/5RS7383

EP type number : 0 412 628 908

Governor

Governer design. :

Governer no. :

Cust. part No. : 1 2277 444

Customer-spec. information

Customer : MWM

Motor : TBD 616

Power KW : 432.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 019

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

H09

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.65

Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 13.00

Tolerance mm : ± 0.50

Firing order : 1- 8- 5- 4- 7
: - 2- 3- 6

Phasing : 0-30-90-120-180

: -210-270-300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 285.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.20

Tolerance mm : ± 0.30

Del. quantity
cm³/1000 strokes : 30.0

Tolerance

cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 285.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance

cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 750

rack travel mm : 12.35

Tolerance mm : ± 0.05

LOW IDLE

Rated speed rpm : 325

rack travel mm : 4.20

Tolerance mm : ± 0.30

Del. quantity
cm³/1000 strokes : 30.0

Tolerance

cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.07.95
Test oil : ISO 4113

Combination No. : 0 402 618 810

Injection pump
Pump designation : PE8P120A300LS7889
EP type number : 0 412 628 912

Governor
Governor design. :
Governor no. :

Cust. part No. : 04221425KZ0165-17

Customer-spec. information
Customer : KHD
Motor : BF8M1015/C

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6
 : - 5- 4- 3

Phasing : 0-45-90-135-180
 : -225-270-315

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.50

Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance

cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 13.75
Tolerance mm : ± 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 21.00

Tolerance mm : ± 0.50

Del. quantity
cm³/1000 strokes : 200.0

Tolerance
cm³/1000 strokes : ± 20.0

Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : 4.50

Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.04.92
Test oil : ISO 4113

Combination No. : 0 402 640 823

Injection pump
Pump designation : PE12P120A320LS7805
EP type number : 0 412 620 802

Governor
Governor design. : RQV350...1050PA781
: -1
Governor no. : 0 421 813 890

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 444 LA
Power KW : 485.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 155
Tolerance l/h : ± 5.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

H13

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8
: - 3- 4- 11- 10
: - 2- 6- 7

Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 212.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.70
Tolerance mm : ± 0.30

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.55
Tolerance mm : ± 0.25

Rated speed rpm : 1107
guide sleeve
travel mm : 8.05
Tolerance mm : ± 0.25

Rated speed rpm : 454
guide sleeve
travel mm : 3.05
Tolerance mm : ± 0.25

Rated speed rpm : 900
guide sleeve
travel mm : 5.65
Tolerance mm : ± 0.25

Rated speed rpm : 1204

guide sleeve
travel mm : 10.05
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1180

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1100

Del. quantity
cm³/1000 strokes : 212.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : ± 4.0

rack travel mm : 13.45
Rated speed rpm : 1095
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : ± 15

rack travel mm : 0.75
Tolerance mm : ± 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 68.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.70
Tolerance mm : \pm 0.10

Rated speed rpm : 250
CRT mm min. : $>$ 7.00
Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.45
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 14.45
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

Pressure hPa : 350
rack travel mm : 0.80
Tolerance mm : \pm 0.10

Pressure hPa : 500
rack travel mm : 2.15
Tolerance mm : \pm 0.15

START CUT-OUT

Rated speed rpm : $<$ 270
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 211.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5
Spreed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.45
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.70
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 626

Injection pump
Pump designation : PE6P120A320RS7299
EP type number : 0 412 626 885

Governor
Governor design. : RQV275...1000PA1076K
Governor no. : 0 421 815 357

Cust. part No. : 1280160

Customer-spec. information

Customer : DAF
Motor : WS 268 M
Power KW : 268.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 250.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.60
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 17.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spreed
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 2.14
Tolerance mm : + 0.15

Rated speed rpm : 1045
guide sleeve
travel mm : 9.82
Tolerance mm : + 0.20

Rated speed rpm : 689
guide sleeve
travel mm : 6.43
Tolerance mm : + 0.25

Rated speed rpm : 284
guide sleeve
travel mm : 2.27
Tolerance mm : + 0.25

Rated speed rpm : 334
guide sleeve
travel mm : 3.17
Tolerance mm : + 0.25

Rated speed rpm : 390
guide sleeve
travel mm : 3.79
Tolerance mm : + 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1130
Rack travel in mm : 12.60
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 250.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : + 4.0

rack travel mm : 12.55
Rated speed rpm : 1042
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1160
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 4.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 390
Tolerance 1/min : \pm 20

Rated speed rpm : 175
CRT mm min. : $>$ 7.50

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 825
rack travel mm : 13.30
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 12.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 13.55
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 980
rack travel mm : 8.60
Tolerance mm : \pm 0.10

Rated speed rpm : 980
Pressure hPa : 720
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Pressure hPa : 360
rack travel mm : 9.80
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 263.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.55
Rated speed rpm : 1042
Tolerance 1/min : \pm 5

LOW IDLE

Rated speed rpm : 275
rack travel mm : 5.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.04.95
Test oil : ISO 4113
Combination No. : 0 402 646 659
Injection pump
Pump designation : PE6P120A7ZORS7283-1
EP type number : 0 412 626 945

Governor
Governor design. : RQV300...1100PA1061
: -2K
Governor no. : 0 421 815 465

Cust. part No. : 615.60.08.0304

Customer spec. information
Customer : SNF
Motor : WD615.50
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901-105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 14.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 244.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance	
cm ³ /1000 strokes	: 6.0
<hr/>	
Check tolerance	
cm ³ /1000S.	: 9.0
<hr/>	
Rated speed rpm	: 300
<hr/>	
Rack travel in mm	: 6.30
Tolerance mm	: ± 0.30
Del. quantity	
cm ³ /1000 strokes	: 27.5
Tolerance	
cm ³ /1000 strokes	: ± 3.0
Check tolerance	
cm ³ /1000S.	: ± 6.0
Speed	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.64
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1156
guide sleeve	
travel mm	: 10.32
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 817
guide sleeve	
travel mm	: 6.93
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 314
guide sleeve	
travel mm	: 1.82
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 364
guide sleeve	
travel mm	: 2.49
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 480
guide sleeve	
travel mm	: 3.56
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1390

guide sleeve	
travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1230
<hr/>	
Rack travel in mm	: 12.30
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm ³ /1000 strokes	: 244.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Speed	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 9.0

RATED SPEED

control lever	
position degree	: 119.0
tolerance degree	: ± 4.0
<hr/>	
rack travel mm	: 12.30
Rated speed rpm	: 1145
Tolerance 1/min	: ± 8
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1255
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.75
Tolerance mm	: ± 0.75
Rated speed rpm	: 1350

LOW IDLE

control lever	
position degree	: 75.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 8.00

Rated speed rpm : 314

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 12.15
Tolerance mm : \pm 0.10

Rated speed rpm : 900
rack travel mm : 12.90
Tolerance mm : \pm 0.15

Rated speed rpm : 500
rack travel mm : 12.10
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 13.30
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 11.10
Tolerance mm : \pm 0.10

Rated speed rpm : 1100

Pressure hPa : 500
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Pressure hPa : 700
rack travel mm : 12.75
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 223.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.30
Rated speed rpm : 1145
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 27.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.07.95
Test oil : ISO 4113

Combination No. : 0 402 646 746

Injection pump
Pump designation : PE6P120A320LS7872
EP type number : 0 412 626 912

Governor
Governor design. : RQV300...950PA1238
Governor no. : 0 421 814 156

Cust. part No. : 04222809KY0165-17

Customer-spec. information
Customer : KHD
Motor : BF6M1015C
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.20
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 358.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread	
Tolerance	
cm ³ /1000 strokes :	6.0
Check tolerance	
cm ³ /1000S. :	9.0
Rated speed rpm :	300
Rack travel in mm :	5.00
Tolerance mm :	+ 0.20
Del. quantity	
cm ³ /1000 strokes :	23.0
Tolerance	
cm ³ /1000 strokes :	+ 3.0
Check tolerance	
cm ³ /1000S. :	+ 6.0
Spread	
Tolerance	
cm ³ /1000 strokes :	8.0
Check tolerance	
cm ³ /1000S. :	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	300
guide sleeve	
travel mm :	1.13
Tolerance mm :	+ 0.20
Rated speed rpm :	994
guide sleeve	
travel mm :	10.08
Tolerance mm :	+ 0.15
Rated speed rpm :	700
guide sleeve	
travel mm :	5.10
Tolerance mm :	+ 0.25
Rated speed rpm :	1160
guide sleeve	
travel mm :	13.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	1035
Rack travel in mm :	13.20
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	900
Aneroid pressure	
hPa :	1700
Del. quantity	
cm ³ /1000 strokes :	358.0
Tolerance	
cm ³ /1000 strokes :	+ 1.0
Check tolerance	
cm ³ /1000S. :	+ 4.0
Spread	
Tolerance	
cm ³ /1000 strokes :	6.0
Check tolerance	
cm ³ /1000S. :	9.0

RATED SPEED

control lever	
position degree :	123.0
tolerance degree :	+ 4.0
rack travel mm :	13.20
Rated speed rpm :	980
Tolerance 1/min :	+ 5
rack travel mm :	4.00
Rated speed rpm :	1055
Tolerance 1/min :	+ 15
rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1200

LOW IDLE

control lever	
position degree :	77.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	300
rack travel mm :	5.00
Tolerance mm :	+ 0.10
Rated speed rpm :	200
CRT mm min. :	> 6.70
Rated speed rpm :	370

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 14.20
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1700
rack travel mm : 14.20
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 8.90
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 385
rack travel mm : 9.70
Tolerance mm : \pm 0.20

Pressure hPa : 1000
rack travel mm : 13.00
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : < 220
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.20
Rated speed rpm : 980
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.90
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 747

Injection pump
Pump designation : PE6P120A320LS7834
: -10

EP type number : 0 412 626 853

Governor
Governor design. : RQV300...1050PA1033
: -22
Governor no. : 0 421 814 146

Cust. part No. : 0260744302

Customer-spec. information
Customer : MB-NFZ
Motor : OM441 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

H28

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.30
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : + 0.20

Rated speed rpm : 1108
guide sleeve
travel mm : 8.53
Tolerance mm : + 0.15

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : + 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03
Tolerance mm : + 0.25

Rated speed rpm : 820
guide sleeve
travel mm : 6.13

Tolerance mm : + 0.25

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1145

Rack travel in mm : 13.80
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 121.0
tolerance degree : + 4.0

rack travel mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 7.00

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 13.25
Tolerance mm : \pm 0.20

Pressure hPa : 500
rack travel mm : 14.10
Tolerance mm : \pm 0.20

START CUT-OUT

J02

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 228.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 748

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQ300/1050PA1030-27
Governor no. : 0 421 801 777

Cust. part No. : 0260744202

Customer-spec. information
Customer : MB-NFZ
Motor : OM441 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

J04

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.30
Tolerance mm : \pm 0.30

Del. quantity
cm3/1000 strokes : 13.0
Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 6.0

Spread
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.78
Tolerance mm : \pm 0.10

Rated speed rpm : 1104
guide sleeve
travel mm : 6.51
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 421
guide sleeve
travel mm : 4.00
Tolerance mm : \pm 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1270
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 230.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 99.0
tolerance degree : \pm 4.0

rack travel mm : 13.80
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : \pm 15

rack travel mm : 0.75
Tolerance mm : \pm 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 405
Tolerance 1/min : \pm 20

Rated speed rpm : 200

CRT mm min. : $>$ 6.80

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 13.25
Tolerance mm : \pm 0.20

Pressure hPa : 500
rack travel mm : 14.10
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 228.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : 6.30
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 749

Injection pump
Pump designation : PE6P120A320LS7837
: -10
EP type number : 0 412 626 855

Governor
Governor design. : RQ300/1050PA993-13
Governor no. : 0 421 801 779

Cust. part No. : 0260744002

Customer-spec. information
Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.85
Tolerance mm : + 0.10

Rated speed rpm : 1104
guide sleeve
travel mm : 6.34
Tolerance mm : + 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 413
guide sleeve
travel mm : 4.55
Tolerance mm : + 0.10

Rated speed rpm : 510
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1100

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 100.0
tolerance degree : + 4.0

rack travel mm : 14.10
Rated speed rpm : 1098
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : \pm 20

Rated speed rpm : 200

CRT mm min. : $>$ 8.10

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.10
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 15.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1100
rack travel mm : 15.10
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.15
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 150
rack travel mm : 10.05
Tolerance mm : \pm 0.20

Pressure hPa : 550
rack travel mm : 13.85
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

J10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 265.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : 6.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 750

Injection pump
Pump designation : PE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RQ300/1050PA1031-21
Governor no. : 0 421 801 772

Cust. part No. : 0260743202

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 190.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 800
Del. quantity
cm³/1000 strokes : 190.0

Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 96.0
tolerance degree : + 4.0

rack travel mm : 12.00
Rated speed rpm : 1098
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 69.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 3.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 350
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 5.10

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.00
Tolerance mm : + 0.05

Rated speed rpm : 550
rack travel mm : 13.00
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 13.00
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 350
rack travel mm : 12.25
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : < 220
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 189.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.06.95

Test oil : ISO 4113

Combination No. : 0 402 646 751

Injection pump

Pump designation : PE6P120A320LS7834

: -10

EP type number : 0 412 626 853

Governor

Governor design. : RQ300/1050PA1031-20

Governor no. : 0 421 801 774

Cust. part No. : 0260743402

Customer-spec. information

Customer : MB-NFZ

Motor : OM401 LA

Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.20

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 202.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 7.00
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.93
Tolerance mm : + 0.10

Rated speed rpm : 1104
guide sleeve
travel mm : 6.83
Tolerance mm : + 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.50
Tolerance mm : + 0.10

Rated speed rpm : 732
guide sleeve
travel mm : 6.13
Tolerance mm : + 0.10

Rated speed rpm : 430
guide sleeve
travel mm : 4.39
Tolerance mm : + 0.10

Rated speed rpm : 540
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1270
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

Rated speed rpm : 829
guide sleeve
travel mm : 6.38
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 800

Del. quantity
cm³/1000 strokes : 202.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 99.0
tolerance degree : + 4.0

rack travel mm : 13.20
Rated speed rpm : 1098
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : \pm 20

Rated speed rpm : 200
CRT mm min. : $>$ 6.10

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.20
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 14.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 14.20
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.60
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.65
Tolerance mm : \pm 0.20

Pressure hPa : 350
rack travel mm : 13.10
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 197.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

BREAKAWAY

Rack travel in mm : 13.20
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0

Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 752

Injection pump
Pump designation : PE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RQ300/1050PA1030-26
Governor no. : 0 421 801 775

Cust. part No. : 0260742602

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : + 0.30

Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0

Spread
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.61
Tolerance mm : + 0.10

Rated speed rpm : 1103
guide sleeve
travel mm : 6.37
Tolerance mm : + 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 431
guide sleeve
travel mm : 4.05
Tolerance mm : + 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 700
Del. quantity
cm3/1000 strokes : 173.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 95.0
tolerance degree : + 4.0

rack travel mm : 11.40
Rated speed rpm : 1098
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1180
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 415
Tolerance 1/min : \pm 20

Rated speed rpm : 200
CRT mm min. : $>$ 7.40

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 700
rack travel mm : 12.40
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.45
Tolerance mm : \pm 0.20

Pressure hPa : 300
rack travel mm : 12.00
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : 5.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 753

Injection pump
Pump designation : PE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RQV300...1050PA1065
: -3
Governor no. : 0 421 814 142

Cust. part No. : 0260742802

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30

Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : ± 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.13
Tolerance mm : ± 0.20

Rated speed rpm : 1108
guide sleeve
travel mm : 9.81
Tolerance mm : ± 0.15

Rated speed rpm : 370
guide sleeve
travel mm : 2.00
Tolerance mm : ± 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 2.49
Tolerance mm : ± 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.87

Tolerance mm : ± 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1220

Rack travel in mm : 11.40
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 101.0
tolerance degree : ± 4.0

rack travel mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : ± 15

rack travel mm : 0.75
Tolerance mm : ± 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 68.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 8.70

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 700
rack travel mm : 12.40
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.45
Tolerance mm : \pm 0.20

Pressure hPa : 300
rack travel mm : 12.00
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : 5.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95

Test oil : ISO 4113

Combination No. : 0 402 646 754

Injection pump

Pump designation : PE6P120A320LS7836

: -10

EP type number : 0 412 626 854

Governor

Governor design. : RQ300/1050PA1031-22

Governor no. : 0 421 801 773

Cust. part No. : 0260742902

Customer-spec. information

Customer : MB-NFZ

Motor : OM401 LA

Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.55

Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 173.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.60
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.61
Tolerance mm : + 0.10

Rated speed rpm : 1103
guide sleeve
travel mm : 6.37
Tolerance mm : + 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 431
guide sleeve
travel mm : 4.05
Tolerance mm : + 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 93.0
tolerance degree : + 4.0

rack travel mm : 11.40
Rated speed rpm : 1098
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1180
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 69.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 3.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 350
Tolerance 1/min : \pm 20

Rated speed rpm : 200
CRT mm min. : $>$ 5.10

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 700
rack travel mm : 12.40
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.45
Tolerance mm : \pm 0.20

Pressure hPa : 300
rack travel mm : 12.00
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

K01

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : 5.60
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 755

Injection pump
Pump designation : PE6P120A320LS7836-2
EP type number : 0 412 626 944

Governor
Governor design. : RQV300...1050PA1033
: -20
Governor no. : 0 421 814 140

Cust. part No. : 0260742702

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : + 0.30

Del. quantity
cm3/1000 strokes : 19.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spread
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : + 0.20

Rated speed rpm : 1107
guide sleeve
travel mm : 8.52
Tolerance mm : + 0.15

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : + 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03
Tolerance mm : + 0.25

Rated speed rpm : 820
guide sleeve
travel mm : 6.13
Tolerance mm : + 0.25

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1150

Rack travel in mm : 11.40
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 700
Del. quantity
cm3/1000 strokes : 173.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 119.0
tolerance degree : + 4.0

rack travel mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 7.60

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 700
rack travel mm : 12.40
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.45
Tolerance mm : \pm 0.20

Pressure hPa : 300
rack travel mm : 12.00
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113
Combination No. : 0 402 646 756
Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853
Governor
Governor design. : RQV300...1050PA1168
: -6
Governor no. : 0 421 814 138
Cust. part No. : 0260743902

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Tolerance l/h : ± 10.0
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 5.25
Tolerance mm : ± 0.05
test only : ± 0.10
Rack travel in mm : 20.50
Tolerance mm : ± 0.50
Firing order : 6- 3- 5- 2- 4-
: 1-
Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75
Start of delivery mark
Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550
Rack travel in mm : 14.80
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.30
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : + 0.20

Rated speed rpm : 1108
guide sleeve
travel mm : 8.53
Tolerance mm : + 0.15

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : + 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03
Tolerance mm : + 0.25

Rated speed rpm : 820
guide sleeve
travel mm : 6.13
Tolerance mm : + 0.25

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1145

Rack travel in mm : 13.80
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 121.0
tolerance degree : + 4.0

rack travel mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 60.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 6.30

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : \pm 0.20

K09

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 229.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 757

Injection pump
Pump designation : PE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RQ300/1050PA1030-25
Governor no. : 0 421 801 771

Cust. part No. : 0260743002

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance *NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 190.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 800
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 95.0
tolerance degree : + 4.0

rack travel mm : 12.00
Rated speed rpm : 1098
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1185
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 415
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 7.60

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.00
Tolerance mm : + 0.05

Rated speed rpm : 550
rack travel mm : 13.00
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 13.00
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 350
rack travel mm : 12.25
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : < 220
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 189.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.06.95

Test oil : ISO 4113

Combination No. : 0 402 646 758

Injection pump

Pump designation : PE6P120A320LS7834

: -10

EP type number : 0 412 626 853

Governor

Governer design. : RQ300/1050PA1030-24

Governer no. : 0 421 801 770

Cust. part No. : 0260743302

Customer-spec. information

Customer : MB-NFZ

Motor : OM401 LA

Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30

Check tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.20

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 202.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 7.00
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.78
Tolerance mm : + 0.10

Rated speed rpm : 1104
guide sleeve
travel mm : 6.69
Tolerance mm : + 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.35
Tolerance mm : + 0.10

Rated speed rpm : 818
guide sleeve
travel mm : 6.09
Tolerance mm : + 0.10

Rated speed rpm : 410
guide sleeve
travel mm : 4.39
Tolerance mm : + 0.10

Rated speed rpm : 510
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1270
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

Rated speed rpm : 889
guide sleeve
travel mm : 6.26
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 800
Del. quantity
cm³/1000 strokes : 202.0

Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 100.0
tolerance degree : + 4.0

rack travel mm : 13.20
Rated speed rpm : 1098
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.70
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : \pm 20

Rated speed rpm : 200

CRT mm min. : $>$ 7.90

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.20
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 14.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 14.20
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.60
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.65
Tolerance mm : \pm 0.20

Pressure hPa : 350
rack travel mm : 13.10
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 197.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.20
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0

Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 759

Injection pump
Pump designation : PE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RQV300...1050PA1033
: -19
Governor no. : 0 421 814 137

Cust. part No. : 0260743102

Customer spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power kW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 190.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1155

Rack travel in mm : 12.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 800

Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : + 4.0

rack travel mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 7.60

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.00
Tolerance mm : + 0.05

Rated speed rpm : 550
rack travel mm : 13.00
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400

Pressure hPa : 800
rack travel mm : 13.00
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 350
rack travel mm : 12.25
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : < 220
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 189.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 760

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQ300/1050PA1030-23
Governor no. : 0 421 801 769

Cust. part No. : 0260743502

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power kW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.30
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.78
Tolerance mm : + 0.10

Rated speed rpm : 1104
guide sleeve
travel mm : 6.51
Tolerance mm : + 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 421
guide sleeve
travel mm : 4.00
Tolerance mm : + 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1270
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 100.0
tolerance degree : + 4.0

rack travel mm : 13.80
Rated speed rpm : 1098
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 405
Tolerance 1/min : \pm 20

Rated speed rpm : 200
CRT mm min. : $>$ 7.00

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 229.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 761

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQ300/1050PA1031-19
Governor no. : 0 421 801 768

Cust. part No. : 0260743802

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.30
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.78
Tolerance mm : + 0.10

Rated speed rpm : 1104
guide sleeve
travel mm : 6.51
Tolerance mm : + 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 379
guide sleeve
travel mm : 3.11
Tolerance mm : + 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1270
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 99.0
tolerance degree : + 4.0

rack travel mm : 13.80
Rated speed rpm : 1098
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 69.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 3.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 350
Tolerance 1/min : \pm 20

Rated speed rpm : 200

CRT mm min. : $>$ 5.30

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 229.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 762

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQV300...1050PA1033
: -18
Governor no. : 0 421 814 136

Cust. part No. : 0260743602

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.30
Tolerance mm : + 0.30

Del. quantity
cm3/1000 strokes : 13.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spread
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : + 0.20

Rated speed rpm : 1108
guide sleeve
travel mm : 8.53
Tolerance mm : + 0.15

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : + 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03
Tolerance mm : + 0.25

Rated speed rpm : 820
guide sleeve
travel mm : 6.13
Tolerance mm : + 0.25

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1145
Rack travel in mm : 13.80
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 230.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 121.0
tolerance degree : + 4.0

rack travel mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 7.00

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 229.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 763

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQV300...1050PA1065
: -2
Governor no. : 0 421 814 135

Cust. part No. : 0260743702

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.30
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.13
Tolerance mm : + 0.25

Rated speed rpm : 1108
guide sleeve
travel mm : 9.82
Tolerance mm : + 0.25

Rated speed rpm : 370
guide sleeve
travel mm : 2.00
Tolerance mm : + 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 2.49
Tolerance mm : + 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.87
Tolerance mm : + 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1200

Rack travel in mm : 13.80
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 104.0
tolerance degree : + 4.0

rack travel mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 68.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 8.10
Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220

Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 229.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95

Test oil : ISO 4113

Combination No. : 0 402 646 764

Injection pump

Pump designation : PE6P120A32OLS7837-2

EP type number : 0 412 626 943

Governor

Governor design. : RQ300/1050PA972-13

Governor no. : 0 421 801 767

Cust. part No. : 0260742402

Customer-spec. information

Customer : MB-NFZ

Motor : OM441 LA

Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

L09

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240

: -300-360

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 252.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Spread	
Tolerance	
cm ³ /1000 strokes :	5.0

Check tolerance	
cm ³ /1000S. :	9.0

Rated speed rpm :	300
-------------------	-----

Rack travel in mm :	6.20
Tolerance mm :	+ 0.30

Del. quantity	
cm ³ /1000 strokes :	19.0

Tolerance	
cm ³ /1000 strokes :	+ 3.0

Check tolerance	
cm ³ /1000S. :	+ 6.0

Spread	
Tolerance	
cm ³ /1000 strokes :	6.0

Check tolerance	
cm ³ /1000S. :	10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	300
guide sleeve	
travel mm :	1.94
Tolerance mm :	+ 0.10

Rated speed rpm :	1104
guide sleeve	
travel mm :	6.34
Tolerance mm :	+ 0.10

Rated speed rpm :	1050
guide sleeve	
travel mm :	6.00
Tolerance mm :	+ 0.10

Rated speed rpm :	441
guide sleeve	
travel mm :	4.85
Tolerance mm :	+ 0.10

Rated speed rpm :	570
guide sleeve	
travel mm :	6.00
Tolerance mm :	+ 0.10

Rated speed rpm :	1280
guide sleeve	
travel mm :	11.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	600
-------------------	-----

Rack travel in mm :	20.00
Tolerance mm :	+ 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	550
Aneroid pressure	
hPa :	1100

Del. quantity	
cm ³ /1000 strokes :	252.0

Tolerance	
cm ³ /1000 strokes :	+ 1.0

Check tolerance	
cm ³ /1000S. :	+ 4.0

Spread	
Tolerance	
cm ³ /1000 strokes :	5.0

Check tolerance	
cm ³ /1000S. :	9.0

RATED SPEED

control lever	
position degree :	100.0
tolerance degree :	+ 4.0

rack travel mm :	14.10
Rated speed rpm :	1098
Tolerance 1/min :	+ 8

rack travel mm :	4.00
Rated speed rpm :	1200
Tolerance 1/min :	+ 15

rack travel mm :	0.75
Tolerance mm :	+ 0.75
Rated speed rpm :	1300

LOW IDLE

control lever	
position degree :	74.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm :	300
rack travel mm :	5.50
Tolerance mm :	+ 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : \pm 20

Rated speed rpm : 200
CRT mm min. : $>$ 8.50

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.10
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 15.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1100
rack travel mm : 15.10
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.15
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 150
rack travel mm : 10.05
Tolerance mm : \pm 0.20

Pressure hPa : 550
rack travel mm : 13.85
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 1098
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 765

Injection pump
Pump designation : PE6P120A320LS7837
: -10
EP type number : 0 412 626 855

Governor
Governor design. : RQV300...1050PA797
: -43
Governor no. : 0 421 814 134

Cust. part No. : 0260742502

Customer spec. information
Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : ± 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : ± 0.20

Rated speed rpm : 1108
guide sleeve
travel mm : 8.54
Tolerance mm : ± 0.15

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : ± 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03
Tolerance mm : ± 0.25

Rated speed rpm : 820
guide sleeve
travel mm : 6.13

Tolerance mm : ± 0.25

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : ± 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1140

Rack travel in mm : 14.10
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1100

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 122.0
tolerance degree : ± 4.0

rack travel mm : 14.10
Rated speed rpm : 1095
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : ± 15

rack travel mm : 0.75
Tolerance mm : ± 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 85.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 8.60

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.10
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 15.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1100
rack travel mm : 15.10
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.15
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 150
rack travel mm : 10.05
Tolerance mm : \pm 0.20

Pressure hPa : 550
rack travel mm : 13.85
Tolerance mm : \pm 0.20

START CUT-OUT

L15

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 766

Injection pump
Pump designation : PE6P120A320LS7837
: -10
EP type number : 0 412 626 855

Governor
Governor design. : RQ300/950PA993-11
Governor no. : 0 421 801 766

Cust. part No. : 0260742302

Customer-spec. information
Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance *NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : + 0.30

Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 2.28
Tolerance mm : + 0.10

Rated speed rpm : 1005
guide sleeve
travel mm : 6.34
Tolerance mm : + 0.10

Rated speed rpm : 950
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 340
guide sleeve
travel mm : 3.46
Tolerance mm : + 0.10

Rated speed rpm : 580
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1190
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1100
Del. quantity
cm3/1000 strokes : 252.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 100.0
tolerance degree : + 4.0

rack travel mm : 14.10
Rated speed rpm : 998
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1105
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 3.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 340
Tolerance 1/min : \pm 20

Rated speed rpm : 200

CRT mm min. : $>$ 6.50

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.10
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 15.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1100
rack travel mm : 15.10
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.15
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 150
rack travel mm : 10.05
Tolerance mm : \pm 0.20

Pressure hPa : 550
rack travel mm : 13.85
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 998
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 767

Injection pump
Pump designation : PE6P120A320LS7837
: -10

EP type number : 0 412 626 855

Governor
Governor design. : RQV300...950PA797
: -42
Governor no. : 0 421 814 133

Cust. part No. : 0260741502

Customer spec. information
Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : + 0.20

Rated speed rpm : 1009
guide sleeve
travel mm : 8.55
Tolerance mm : + 0.15

Rated speed rpm : 567
guide sleeve
travel mm : 4.66
Tolerance mm : + 0.25

Rated speed rpm : 617
guide sleeve
travel mm : 5.23
Tolerance mm : + 0.25

Rated speed rpm : 780
guide sleeve
travel mm : 6.31
Tolerance mm : + 0.25

Rated speed rpm : 1092

guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1190
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1040

Rack travel in mm : 14.10
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1100
Del. quantity
cm³/1000 strokes : 252.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 122.0
tolerance degree : + 4.0

rack travel mm : 14.10
Rated speed rpm : 995
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1100
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 85.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 8.50

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.10
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 15.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1100
rack travel mm : 15.10
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.15
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 150
rack travel mm : 10.05
Tolerance mm : \pm 0.20

Pressure hPa : 550
rack travel mm : 13.85
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 995
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

Note remarks

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 768

Injection pump
Pump designation : PE6P120A320LS7837
: -10
EP type number : 0 412 626 855

Governor
Governor design. : RQ300/950PA971-12
Governor no. : 0 421 801 765

Cust. part No. : 0260741302

Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : \pm 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

Test pressure bar : 26.0
Tolerance bar : \pm 1.0

Prestroke mm	:	5.25
Tolerance mm	:	+ 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : + 0.30

Del. quantity
cm3/1000 strokes : 19.0
Tolerance

cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spreed
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.72
Tolerance mm : + 0.10

Rated speed rpm : 1005
guide sleeve
travel mm : 6.34
Tolerance mm : + 0.10

Rated speed rpm : 950
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 429
guide sleeve
travel mm : 4.46
Tolerance mm : + 0.10

Rated speed rpm : 580
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1190

guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure

hPa : 1100

Del. quantity
cm3/1000 strokes : 252.0
Tolerance

cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spreed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 100.0
tolerance degree : + 4.0

rack travel mm : 14.10
Rated speed rpm : 998
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1108
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 435
Tolerance 1/min : \pm 30

Rated speed rpm : 200
CRT mm min. : $>$ 8.60

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.10
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 15.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1100
rack travel mm : 15.10
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.15
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 150
rack travel mm : 10.05
Tolerance mm : \pm 0.20

Pressure hPa : 550
rack travel mm : 13.85
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 998
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : 6.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 769

Injection pump
Pump designation : FE6P120A320LS7837
: -10
EP type number : 0 412 626 855

Governor
Governor design. : RQV300...950PA1168
: -5
Governor no. : 0 421 814 132

Cust. part No. : 0260740002

Customer-spec. information
Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 80
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5

M01

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.26
Tolerance mm : + 0.20

Rated speed rpm : 1009
guide sleeve
travel mm : 8.28
Tolerance mm : + 0.15

Rated speed rpm : 575
guide sleeve
travel mm : 4.46
Tolerance mm : + 0.25

Rated speed rpm : 625
guide sleeve
travel mm : 5.03
Tolerance mm : + 0.25

Rated speed rpm : 790
guide sleeve
travel mm : 6.16

M02

Tolerance mm : + 0.25

Rated speed rpm : 1103
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1200
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1060

Rack travel in mm : 14.10
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1100

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 123.0
tolerance degree : + 4.0

rack travel mm : 14.10
Rated speed rpm : 995
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1090
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 3.50
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 5.70

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.10
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 15.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1100
rack travel mm : 15.10
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.15
Tolerance mm : \pm 0.20

Rated speed rpm : 400

Pressure hPa : 150
rack travel mm : 10.05
Tolerance mm : \pm 0.20

Pressure hPa : 550
rack travel mm : 13.85
Tolerance mm : \pm 0.20

START CUT-OUT

M03

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 242.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 995
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 770

Injection pump
Pump designation : FE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RQV300...1050PA1168
: -7
Governor no. : 0 421 814 143

Cust. part No. : 0250749902

Customer spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 75
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

M05

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 190.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : + 0.25

Rated speed rpm : 1107
guide sleeve
travel mm : 8.52
Tolerance mm : + 0.25

Rated speed rpm : 1640
guide sleeve
travel mm : 25.13
Tolerance mm : + 0.25

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : + 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03

Tolerance mm : + 0.25

Rated speed rpm : 820
guide sleeve
travel mm : 6.13
Tolerance mm : + 0.25

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1145

Rack travel in mm : 12.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 800
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control Lever
position degree : 120.0
tolerance degree : + 4.0

rack travel mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : + 15

rack travel mm : 0.75

Tolerance mm : \pm 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 3.50
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 5.30

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 13.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 13.00
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.40
Tolerance mm : \pm 0.15

Pressure hPa : 350

M07

rack travel mm : 12.25
Tolerance mm : \pm 0.15

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 189.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 20.0

Check tolerance
cm³/1000s. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 771

Injection pump
Pump designation : PE6P120A320LS7836-2
EP type number : 0 412 626 944

Governor
Governor design. : RQV300...1050PA1168
: -8
Governor no. : 0 421 814 141

Cust. part No. : 0250749802

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 95
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

M09

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : + 0.30

Del. quantity
cm3/1000 strokes : 19.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spread
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : + 0.20

Rated speed rpm : 1107
guide sleeve
travel mm : 8.51
Tolerance mm : + 0.15

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : + 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03
Tolerance mm : + 0.25

Rated speed rpm : 820
guide sleeve
travel mm : 6.13
Tolerance mm : + 0.25

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1150

Rack travel in mm : 11.40
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 700
Del. quantity
cm3/1000 strokes : 173.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 119.0
tolerance degree : + 4.0

rack travel mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 3.50
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 5.30

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 700
rack travel mm : 12.40
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.45
Tolerance mm : \pm 0.20

Pressure hPa : 300
rack travel mm : 12.00
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.05.95

Test oil : ISO 4113

Combination No. : 0 402 646 785A

Injection pump

Pump designation : FE6P120A320LS7869

EP type number : 0 412 626 887

Governor

Governor design. : RQV300...1050PA1078K

Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer spec. information

Customer : LIEBHERR

Motor : D 9406 TI

Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 165

Tolerance l/h : ± 20.0

Test nozzle holder assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.00

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 279.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000s. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.10
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 50.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.69
Tolerance mm : ± 0.25

Rated speed rpm : 1117
guide sleeve
travel mm : 10.38
Tolerance mm : ± 0.25

Rated speed rpm : 746
guide sleeve
travel mm : 6.20
Tolerance mm : ± 0.25

Rated speed rpm : 353
guide sleeve
travel mm : 2.45
Tolerance mm : ± 0.25

Rated speed rpm : 403
guide sleeve
travel mm : 3.18
Tolerance mm : ± 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.66
Tolerance mm : ± 0.25

Rated speed rpm : 1320
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1185

Rack travel in mm : 11.00
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1550

Del. quantity
cm³/1000 strokes : 279.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 121.0
tolerance degree : ± 4.0

rack travel mm : 11.00
Rated speed rpm : 1105
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1185
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.10
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 8.00

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.00
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 9.75
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 11.85
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 10.25
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1550
rack travel mm : 12.00
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 9.35
Tolerance mm : \pm 0.10

Rated speed rpm : 1050

Pressure hPa : 725
rack travel mm : 10.70
Tolerance mm : \pm 0.05

Pressure hPa : 525
rack travel mm : 9.50
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : $<$ 220

Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1550
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 295.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : 1550
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1105
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.55
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 786A

Injection pump
Pump designation : PE6P120A320LS7846
EP type number : 0 412 626 865

Governor
Governor design. : RQV300...1050PA1065
Governor no. : 0 421 814 053

Cust. part No. : 0240747802

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance *NW : ± 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.30
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.13
Tolerance mm : + 0.20

Rated speed rpm : 1108
guide sleeve
travel mm : 9.82
Tolerance mm : + 0.10

Rated speed rpm : 370
guide sleeve
travel mm : 2.00
Tolerance mm : + 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 2.49
Tolerance mm : + 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.87
Tolerance mm : + 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1200

Rack travel in mm : 13.80
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 104.0
tolerance degree : + 4.0

rack travel mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 68.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 8.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220

Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 229.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 794A

Injection pump
Pump designation : FE6P120A320LS7858
EP type number : 0 412 626 875

Governor
Governor design. : RQV300...1050PA1033
: -9
Governor no. : 0 421 814 028

Cust. part No. : 0230749402

Customer-spec. information
Customer : 4B-NFZ
Motor : OM401 LA
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance *NW : ± 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 190.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : + 0.30

Del. quantity
cm3/1000 strokes : 19.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spread
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : + 0.20

Rated speed rpm : 1107
guide sleeve
travel mm : 8.52
Tolerance mm : + 0.15

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : + 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03

Tolerance mm : + 0.25

Rated speed rpm : 820
guide sleeve
travel mm : 6.13
Tolerance mm : + 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1155

Rack travel in mm : 12.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 800

Del. quantity
cm3/1000 strokes : 190.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : + 4.0

rack travel mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 7.60

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 13.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 13.00
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.55
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 350
rack travel mm : 12.25
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 189.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 795A

Injection pump
Pump designation : PE6P120A320LS7858-1
EP type number : 0 412 626 911

Governor
Governor design. : RQV300...1050PA1033
: -8
Governor no. : 0 421 814 027

Cust. part No. : 0230749002

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : + 0.20

Rated speed rpm : 1107
guide sleeve
travel mm : 8.52
Tolerance mm : + 0.15

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : + 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03
Tolerance mm : + 0.25

Rated speed rpm : 820
guide sleeve
travel mm : 6.13

Tolerance mm : + 0.25

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1150

Rack travel in mm : 11.40
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 119.0
tolerance degree : + 4.0

rack travel mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 7.60

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 700
rack travel mm : 12.40
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 11.05
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.45
Tolerance mm : \pm 0.20

Pressure hPa : 300
rack travel mm : 12.00
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.91
Test oil : ISO 4113

Combination No. : 0 402 646 877

Injection pump
Pump designation : PE6P130A720RS7122-1
EP type number : 0 412 636 812

Governor
Governor design. : RQV225...930PA922
Governor no. : 0 421 813 763

Cust. part No. :

Customer-spec. information

Customer : VOLVO-TRUCK
Motor : TD162 FL,FJ,
Power KW : 331.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 1000

REMARKS

Start-of-delivery setting with ROBO diaphragm.

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Del. quantity
cm3/1000 strokes : 302.5

Tolerance
cm3/1000 strokes : ± 1.5

Check tolerance
cm3/1000S. : ± 5.0

Speed
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

Del. quantity
cm3/1000 strokes : 28.0

Tolerance
cm3/1000 strokes : ± 2.5

Check tolerance
cm3/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.20
Tolerance mm : \pm 0.20

Rated speed rpm : 975
guide sleeve
travel mm : 8.30
Tolerance mm : \pm 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 2.40
Tolerance mm : \pm 0.30

Rated speed rpm : 700
guide sleeve
travel mm : 5.90
Tolerance mm : \pm 0.30

Rated speed rpm : 1090
guide sleeve
travel mm : 9.70
Tolerance mm : \pm 0.20

GUIDE SLEEVE POSITION

Rated speed rpm : 1100

Rack travel in mm : 9.00
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 302.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0

N02

Check tolerance
cm³/1000S. : 10.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : \pm 4.0

rack travel mm : 12.50
Rated speed rpm : 975
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1105
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 64.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 6.50

Rated speed rpm : 350

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.55
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

rack travel mm : 9.60
Tolerance mm : \pm 0.10

Rated speed rpm : 500

Pressure hPa : 720
rack travel mm : 3.60
Tolerance mm : \pm 0.10

Pressure hPa : 85
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 182.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 5.0

BREAKAWAY

Rack travel in mm : 12.50
Rated speed rpm : 975
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0

N03

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113

Combination No. : 0 402 646 969

Injection pump
Pump designation : PE6P120A320RS7248
: -10Z
EP type number : 0 412 626 901

Governor
Governor design. : RQV275...1150PA986
Governor no. : 0 421 813 920

Cust. part No. : 1248041/4

Customer spec. information
Customer : DAF
Motor : RS 200 L
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

N04

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 11.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.70
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 167.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.40
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 16.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spread
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1335

Rack travel in mm : 10.30
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 167.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : + 4.0

rack travel mm : 10.70
Rated speed rpm : 1182
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1290
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 83.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 4.70
Tolerance mm : + 0.10

Rated speed rpm : 175

CRT mm min. : > 7.50

Rated speed rpm : 340

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.70
Tolerance mm : + 0.05

Rated speed rpm : 1150
rack travel mm : 11.70
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600

Pressure hPa : 1000
rack travel mm : 11.70
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 9.10
Tolerance mm : \pm 0.10

Rated speed rpm : 600

Pressure hPa : 340
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Pressure hPa : 200
rack travel mm : 9.70
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 117.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 10.70
Rated speed rpm : 1182
Tolerance 1/min : \pm 5

LOW IDLE

Rated speed rpm : 275
rack travel mm : 5.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.06.94
Test oil : ISO 4113

Combination No. : 0 402 646 983

Injection pump
Pump designation : PE6P120A320LS7846
EP type number : 0 412 626 865

Governor
Governor design. : RQV300...1050PA1033
: -2
Governor no. : 0 421 813 994

Cust. part No. : 0230741102

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

N07

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 231.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.20
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 0.74
Tolerance mm : + 0.20

Rated speed rpm : 1107
guide sleeve
travel mm : 8.38
Tolerance mm : + 0.15

Rated speed rpm : 575
guide sleeve
travel mm : 4.52
Tolerance mm : + 0.25

Rated speed rpm : 625
guide sleeve
travel mm : 5.04
Tolerance mm : + 0.25

Rated speed rpm : 830
guide sleeve
travel mm : 6.13
Tolerance mm : + 0.25

Rated speed rpm : 1190
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1290
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1160

Rack travel in mm : 11.70
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 231.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : + 4.0

rack travel mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 7.50

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 13.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 13.00
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.35
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 11.55
Tolerance mm : \pm 0.10

Pressure hPa : 600
rack travel mm : 12.50
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 228.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 133.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.75
Tolerance mm : \pm 0.25
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 983A

Injection pump
Pump designation : PE6P120A320LS7846
EP type number : 0 412 626 865

Governor
Governor design. : RQV300...1050PA1033
: -2
Governor no. : 0 421 813 994

Cust. part No. : 0230741102

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.30
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.29
Tolerance mm : + 0.20

Rated speed rpm : 1108
guide sleeve
travel mm : 8.53
Tolerance mm : + 0.15

Rated speed rpm : 558
guide sleeve
travel mm : 4.53
Tolerance mm : + 0.25

Rated speed rpm : 608
guide sleeve
travel mm : 5.03
Tolerance mm : + 0.25

Rated speed rpm : 820
guide sleeve
travel mm : 6.13

Tolerance mm : + 0.25

Rated speed rpm : 1183
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1145

Rack travel in mm : 13.80
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 121.0
tolerance degree : + 4.0

rack travel mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 7.00

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 14.15

Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $<$ 220
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 229.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 15.0

Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.05.95
Test oil : ISO 4113
Combination No. : 0 402 646 988
Injection pump
Pump designation : PE6P120A320RS7230
: -10X
EP type number : 0 412 626 899
Governor
Governor design. : RQV250...1000PA990K
Governor no. : 0 421 815 274

Cust. part No. : 1250705/4

Customer-spec. information
Customer : DAF
Motor : WS 295 L
Power KW : 295.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 259.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 6.10
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 17.0
Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spread
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.53
Tolerance mm : + 0.10

Rated speed rpm : 1038
guide sleeve
travel mm : 9.74
Tolerance mm : + 0.10

Rated speed rpm : 686
guide sleeve
travel mm : 6.41
Tolerance mm : + 0.25

Rated speed rpm : 284
guide sleeve
travel mm : 2.27
Tolerance mm : + 0.25

Rated speed rpm : 334
guide sleeve
travel mm : 3.17
Tolerance mm : + 0.25

Rated speed rpm : 390

guide sleeve
travel mm : 3.79
Tolerance mm : + 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1130

Rack travel in mm : 13.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 259.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : + 4.0

rack travel mm : 12.95
Rated speed rpm : 1032
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1150
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.20
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 350
Tolerance 1/min : + 20

Rated speed rpm : 150

CRT mm min. : > 7.00

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 13.95
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 12.35
Tolerance mm : + 0.05

Rated speed rpm : 825
rack travel mm : 13.40
Tolerance mm : + 0.10

Rated speed rpm : 400
rack travel mm : 12.20
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 13.95
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 980
rack travel mm : 8.90
Tolerance mm : + 0.10

Rated speed rpm : 980

Pressure hPa : 730

rack travel mm : 12.65
Tolerance mm : + 0.05

Pressure hPa : 300
rack travel mm : 9.80
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 257.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 12.95
Rated speed rpm : 1032
Tolerance 1/min : + 5

LOW IDLE

Rated speed rpm : 250
rack travel mm : 6.10
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.95
Test oil : ISO 4113
Combination No. : 0 402 646 989
Injection pump
Pump designation : PE6P120A320RS7230
: -10Y
EP type number : 0 412 626 898
Governor
Governor design. : RGV250...1000PA990K
Governor no. : 0 421 815 274

Cust. part No. : 1250708/2

Customer-spec. information

Customer : DAF
Motor : WS 315 L
Power KW : 315.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 14.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 14.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 274.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 6.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 17.0
Tolerance

cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.53
Tolerance mm : + 0.20

Rated speed rpm : 1045
guide sleeve
travel mm : 9.82
Tolerance mm : + 0.15

Rated speed rpm : 689
guide sleeve
travel mm : 6.43
Tolerance mm : + 0.25

Rated speed rpm : 284
guide sleeve
travel mm : 2.27
Tolerance mm : + 0.25

Rated speed rpm : 334
guide sleeve
travel mm : 3.08
Tolerance mm : + 0.25

Rated speed rpm : 400

guide sleeve
travel mm : 3.92
Tolerance mm : + 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1130
Rack travel in mm : 13.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 274.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : + 4.0

rack travel mm : 13.55
Rated speed rpm : 1032
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1150
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.20
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 340
Tolerance 1/min : + 20

Rated speed rpm : 150

CRT mm min. : > 7.00

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 14.55
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 13.30
Tolerance mm : + 0.05

Rated speed rpm : 400
rack travel mm : 13.20
Tolerance mm : + 0.10

Rated speed rpm : 800
rack travel mm : 14.20
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 14.55
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 980
rack travel mm : 9.10
Tolerance mm : + 0.10

Rated speed rpm : 980

Pressure hPa : 760

rack travel mm : 13.15
Tolerance mm : + 0.05

Pressure hPa : 350
rack travel mm : 10.30
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 286.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 172.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 13.55
Rated speed rpm : 1032
Tolerance 1/min : + 8

LOW IDLE

Rated speed rpm : 250
rack travel mm : 6.20
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.05.95

Test oil : ISO 4113

Combination No. : 0 402 648 798

Injection pump

Pump designation : PE8P120A320LS7830

EP type number : 0 412 628 844

Governor

Governer design. : RQV350...1000PA1234

Governer no. : 0 421 814 153

Cust. part No. : 0230746502

Customer-spec. information

Customer : MTU

Motor : 8V 183-02

Power KW : 365.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 85

Tolerance l/h : ± 10.0

Test nozzle holde assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.25

Tolerance mm : ± 0.75

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 237.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.60
Tolerance mm : + 0.30

Del. quantity
cm3/1000 strokes : 13.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spread
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.53
Tolerance mm : + 0.20

Rated speed rpm : 1055
guide sleeve
travel mm : 6.50
Tolerance mm : + 0.15

Rated speed rpm : 870
guide sleeve
travel mm : 4.94
Tolerance mm : + 0.25

Rated speed rpm : 404
guide sleeve
travel mm : 2.52
Tolerance mm : + 0.25

Rated speed rpm : 454
guide sleeve
travel mm : 3.07
Tolerance mm : + 0.25

Rated speed rpm : 570
guide sleeve
travel mm : 3.45
Tolerance mm : + 0.25

Rated speed rpm : 1241
guide sleeve
travel mm : 10.00
Tolerance mm : + 0.25

Rated speed rpm : 1330
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1220

Rack travel in mm : 12.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 2000
Del. quantity
cm3/1000 strokes : 237.0

Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 9.0

RATED SPEED

control lever
position degree : 109.0
tolerance degree : + 4.0

rack travel mm : 12.00
Rated speed rpm : 1045
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1150
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 66.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : \pm 0.10

Rated speed rpm : 250
CRT mm min. : $>$ 6.70

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.00
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 2000
rack travel mm : 13.00
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 7.00
Tolerance mm : \pm 0.15

Rated speed rpm : 500

Pressure hPa : 400
rack travel mm : 8.45
Tolerance mm : \pm 0.05

Pressure hPa : 1000
rack travel mm : 11.40

Tolerance mm : \pm 0.15

START CUT-OUT

Rated speed rpm : $<$ 270
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 238.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1045
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : \pm 0.30

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet